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Looking Back: Reviewing the Challenges of Policy Development During the COVID-19 Pandemic for a TNE Partnership in Higher Education

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This paper takes a retrospective view of the year 2020, with a focus on how Higher Education policy development was undertaken on a Transnational Education (TNE) program between the University of Glasgow (UofG) and the University of Electronics, Science and Technology in Chengdu (UESTC), China in response to the COVID-19 pandemic. It explores the approach to policy development under normal circumstances, contrasting this with the approach taken during the emergence of the epidemic and how the unfolding situation impacted on those policies. It demonstrates how the application of management tools for scenario planning and crisis management can be used effectively to develop a clear and prescriptive policy for staff. It also demonstrates how the use of such tools, combined with careful analysis and planning, can minimize disruption to student learning, teaching, and assessment. The paper then goes on to explain the creation and implementation of policies addressing three main areas: learning and teaching, Final Year Projects, and assessment. Finally, it reflects on the student and staff perspectives on the policies, considering how this information might be used to enhance the policy development process in future.

Keywords: transnational, education, TNE, policy development, pandemic, crisis management, scenario planning, China

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INTRODUCTION

The development of operational and strategic policies in the Higher Education (HE) sector is traditionally slow and protracted. In part, this reflects the long "time-constants" associated with all government level decision processes in the creation of policies. A significant factor within this issue is the "processing delay" embedded in educational process constraints, as any new policy must be applied only to new cohorts of students; and hence the outcomes, no matter how desirable their immediate impact, can only become fully evident once students have gone through the full programme (of 3–4 years) until graduation.

The emergence of the COVID-19 epidemic in January 2020 caused major disruption worldwide and affected the HE sector across all its activities, with the greatest impact being on delivery and student assessment. The HE sector is unaccustomed to rapid change and often ill-equipped to

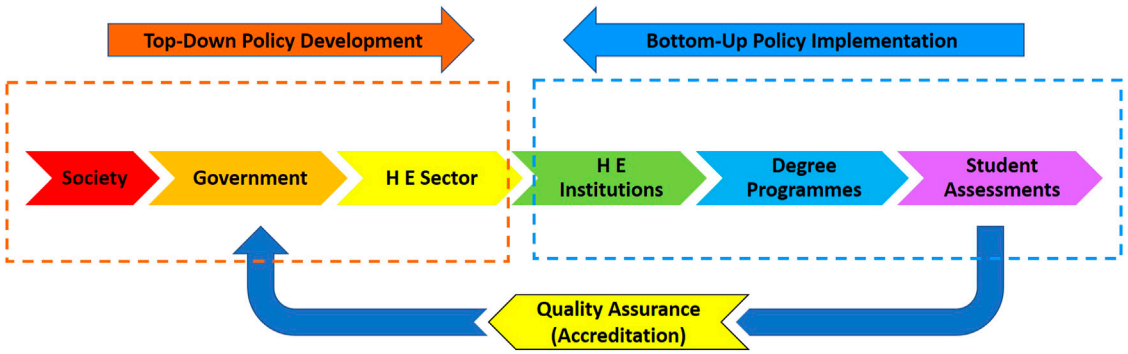

FIGURE 1 | Educational policy development.

manage such events, which gave rise to an assortment of different approaches at institutional level in an attempt to maintain operations, some of which were more successful than others.

This paper examines how one Transnational Education (TNE) partnership responded to the crisis, through its development and management of new operational policies, based on sound management techniques and tools, to deal with disruption and continue course delivery and assessment of students. The underlying objective of this response was to minimize the disruption to both staff and students through the careful management and communication of any changes and required the rapid development and deployment of several "emergency" policies.

This paper is divided into three main sections; the first part looks at the development, deployment, and implementation of education policy at a national level under normal circumstances, before addressing the specific demands imposed by TNE. Part two introduces Crisis Management as implemented in an industrial setting when dealing with emergency events and then looks at the application of scenario planning tools for developing medium term strategies. The third and final part details the response of a specific TNE partnership and how it used industry crisis management and scenario planning tools to manage the situation. The basis of this paper stems from a conference presentation paper (Bremner et al., 2020) which looked at the preparation of the policy. This extended paper looks at the deployment and implications of the process, reflects on the efficacy of the approach, and summarizes potential insights for future improvements.

The Development of Educational Policy

First, the process of policy development will be explored. A primary objective of all sovereign governments is the leadership of its people through the legislative and political framework according to its constitution. Education Policy, and how a nation state manages the education and training throughout society, has a significant influence on how the nation defines itself both internally to its citizens, and externally to the rest of the world. It could be argued that Education policy, more so than the policies for defense, healthcare, or foreign affairs, encompasses the fundamental values of a nation. Consequently, education policy creation is a highly complex, consultative, and lengthy process, resulting in a policy comprising of two fundamental parts; the legislative activities, driven by the government that define the strategy, remit, and metrics of the policy; and the implementation details delegated to the education department responsible for meeting the policy objectives (Schmidt, 2008), (Vargas et al., 2019a). **Figure 1** shows a simple flow diagram demonstrating the inter-relationship between these two actors and the paradox in the top-down and bottom-up nature of educational policy. It should be emphasized that while educational policy also covers primary, and secondary education, there is considerably less latitude at school level to determine delivery and implementation modes. In the tertiary sector, universities have considerably more freedom and latitude in how they choose to deliver education.

Within most societies, governmental control of education is exercised through fiscal policy. In the HE sector, this policy operates at two levels (Woodhall, 2007); at an under-graduate recruitment level, by controlling the numbers for domestic student enrolment (Vargas et al., 2019b), and by governmental control through the priorities set for the research funders. The former method is highly effective in influencing institutions dominated by teaching, and the latter particularly effective in influencing the more research active universities (Lang, 2015).

In the United Kingdom, after the passing of the "Scotland Act 1998" (Winetrobe, 2011), which devolved responsibility for education to the separate nations, there was essentially a reduction of power in the United Kingdom central government's ability to directly control education policies uniformly across the regions. This has resulted in different education polices being applied across the United Kingdom (Goddard and Chatterton, 2000) and has made the institutions more aligned and responsive to the cultural and economic needs of the regions in which they are located (Shattock and Horvath, 2020). However, despite the devolved responsibilities the United Kingdom higher education sector still remains highly homogeneous primarily due to the historic influence of central government (Bartelse and Van Vught, 2005).While the effect of this homogeneity has been attributed to a general standardization of the quality of teaching across the sector, this has been at the

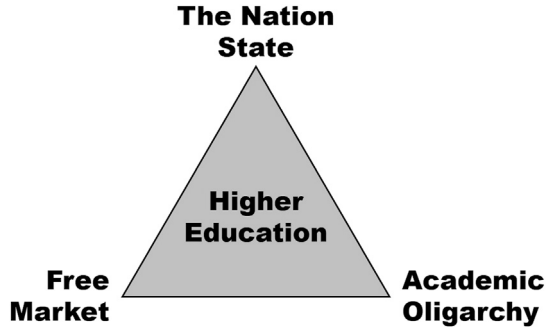

FIGURE 2 | Clark's triangle of forces within higher education.

expense of differentiation between institutions as suggested by (Magd and Curry, 2003) and further supported by (Cooke-Davies and Arzymanow, 2003).

However, in contrast to education policy as applied to compulsory school education, HE institutions have considerably greater freedom to define the detailed subject matter and assessment methodology they adopt. This freedom constitutes the "bottom-up" aspect of HE education policy and is fiercely defended by all universities and enshrined in the concept of "academic freedom" (Nelson, 2010). Although a few specific vocational subjects such as medicine, law, dentistry and engineering are governed by professional bodies responsible for the accreditation of course content, format, and learning outcomes, the majority of undergraduate degrees have a large degree of autonomy in curriculum and assessment design.

In virtually all countries, this method of education policy control and implementation has been adopted but given the slow rate of policy change combined with contractual obligations based on funding mechanisms, it works more or less well in differing contexts. However, in the United Kingdom, long recognized for its high-quality education system, the gradual reduction of HE funding has forced HE institutions to seek alternative sources of income.

Transnational Education

As a result of United Kingdom Governmental restrictions on home student recruitment, institutions have been forced to pursue expansion and growth through student recruitment overseas. Initially, overseas students attended the home (United Kingdom) institution but as competition for students increased, this led to the establishment of off-shore operations (Uddin and Papé, 2018), with United Kingdom sending institutions awarding degrees in a host country. The United Kingdom has been particularly active and successful in promoting TNE activities and is currently the global leader in offering TNE (JISC, 2018). This is partly due to changes in the HE funding model (Woodhall, 2007), demonstrating a deliberate repositioning of United Kingdom HE within Clark's triangle (**Figure 2**) (Clark, 1998; 2004), away from the state and academe vertices and towards a market led model (Lang, 2017).

According to the framework proposed by (Knight, 2016), there are a number of different definitions of TNE operations in existence, each with particular characteristics and challenges for the sending and host institutions. Some of these challenges include balancing partnering institutes' mutual expectations, not only in terms of financial outcomes but also in quality of education. At times, there is a challenge of meeting accreditation requirements from both the sending and host country's accreditation bodies, which results in additional workload for staff and students, and this needs careful negotiation and agreement. Further, there are challenges related to differences in working culture and practices of the partner countries, which can create complex communication gaps and may lead to misunderstanding. Finally, the time difference between countries in the partnering organisations can often lead to extended work hours for management, staff and students, which can often overload the people involved. Despite the additional working hours, delays in response to urgent matters e.g., student queries on the night of exam, are unavoidable due to these time zone differences. Therefore, policy development within TNE programs needs to take all such challenges into account. This paper focuses on the specific challenges of a TNE partnership described as a "collaborative TNE partnership" where the United Kingdom sending institution (UofG) operates in a flying faculty model (FIFO) and the host institution (UESTC) has facilities (Glasgow College-UESTC) dedicated to the students and the partnership (Sidhu and Christie, 2015). Teaching delivery is shared equally between the partners on a subject basis and graduating students from the College receive a degree certificate from each partner. By necessity, this structure demands close and complex interactions across the curriculum and between the partners, demanding highly integrated support and cooperation in both teaching and administration (de Souza-Daw et al., 2019).

In the collaborative model, these pressures are felt acutely by the FIFO teaching faculty, and considerable effort must be expended by the sending institution in the preparation and training of staff (Mizzi, 2017). Regrettably, too little emphasis is attributed to the challenges faced by staff who must assimilate new cultural awareness skills, often with associated new classroom skills, to reflect the different cultural traditions of their new student cohorts (Hénard et al., 2012), and who must develop pragmatic coping strategies (Tharapos and O'Connell, 2019). This cultural transition can be particularly challenging in the FIFO model as staff must switch between two different cultural and teaching regimes frequently (Mizzi, 2017).

The ability to create a successful partnership structure (Li, 2019) demands close and intimate alignment of processes and procedures, with a mutual understanding of the respective cultures and policies between the partners if the end result delivered to students is to appear seamless. The demand and commitment by the partnership in support of the TNE activity must be commensurate with the returns and rewards if it is to survive and grow (Bennell, 2019).

In contrast to the development of a national educational policy, prepared using a top-down approach (Hénard et al., 2012), delivering education and the associated work practices necessitates a bottom-up approach. The establishment and growth of Communities of Practice (CoP) (Tharapos and

O'Connell, 2020) often leads to the development of informal standard practices and procedures. In normal circumstances, these internal policy artefacts are written and improved over an extended period; a luxury that eluded staff from both institutions in response to the COVID-19 epidemic. This paper examines how a pragmatic approach to the development of operational policy was used to educate and assess TNE students undergoing on-line teaching, while ensuring that high standards and learning outcomes were maintained.

The Theory and Practice of Crisis Management and Scenario Planning

Studies in Crisis Management and Scenario Planning have been discussed at length in management literature (Helsloot et al., 2012) and the terms are frequently conflated as though synonymous. However, this is not the case. In the present era of "Black Swans and Mega Crises" (Ansell and Boin, 2019), unplanned events seem to occur more frequently and it is more important than ever to be clear on the meanings of the two terms and how they would be applied to exceptional or unplanned events.

"*Crises will always happen and cause surprise*" (Jasanoff, 1993; Clarke, 1999; Perrow, 2011); it is the skill, experience, and leadership of those involved in the management of that crisis which will dictate how successful an organisation is in navigating its way through the challenge to reach a distant "refuge point". In the context of this paper, we will use Boin, Kuiper, and Overdijk's definition of crisis management *"as the sum of activities aimed at minimizing the impact of a crisis"* (Boin et al., 2013). Effective crisis management saves lives, protects infrastructure, and restores trust; and can be summarised in the following three activities:

- Making things happen: crisis management is about organizing, directing, and implementing actions that minimize the impact of a threat;
- Getting the job done: forging cooperation between previously unrelated agents; and enabling "work arounds" when routines and resources do not work;
- Fulfilling a symbolic need for direction and guidance.

In short, crisis management provides leadership to those involved and overwhelmed by the crisis through a route to "salvation" and eventual normality. Traditionally, crisis management is usually a short-term activity and made popular by many Hollywood "disaster movies", where the hero rides to the rescue and saves the day. However, in a real-life crisis the situation is more complex and has two orthogonal dimensions; operational and strategic (Ansell and Boin, 2019). On the operational dimension, we find first responders, control room operators, and system experts. They are the professionals trained to deal with glitches, accidents, and emergencies and are often the hero portrayed in the Hollywood movie; they exemplify the first two "action oriented" activities listed above. On the strategic dimension, we find the senior managers or political leaders who carry ultimate responsibility for the outcome of the crisis. The task of this group is to support the operation team by removing (organisational) obstacles and providing sufficient freedom in which to allow the operational team to perform their duties. However, the more significant role of the strategic group is to consider the route to recovery after the initial crisis has passed. This is achieved through the formulation, communication, and implementation of a recovery plan or policy.

The reference to "strategic" activities in crisis management may be the reason for the confusion between crisis management, scenario planning, and strategic planning, but they are radically different in approach and fundamentally different in purpose. Whereas crisis management occurs *in response* to an unplanned event, scenario planning is concerned with *how* an organisation might respond *if* a given event occurs (Godet, 2000; Aljuhmani and Emeagwali, 2017). Strategic planning is the development of a forward-looking plan that identifies future opportunities and aligns them with the capabilities within the organisation to capitalise on those opportunities. During the development of a formal strategic plan, scenario planning is one of a suite of tools that may be employed to quantify and qualify the most appropriate strategy for an organisation.

The benefits of integrating scenario planning into crisis management has been recognised in the past by Preble, 1997, but as a defensive rather than offensive strategy. The greatest challenge in applying scenario planning tools in crisis management is the quality of data upon which decisions must be based. A key aspect of any crisis is the novelty and fluidity of the situation; the application of predefined processes reliant upon good information is not possible and a pragmatic approach (Weber, 1987), sometimes referred to as "Practical Rationality" (Garrison, 1999), must be used. The fundamental challenge in developing scenarios is the ability to differentiate between facts, opinion, and intelligence. Ex US Secretary of State for Defence captured this succinctly during a recent television interview by responding: "*If it were a fact it would not be called intelligence*" (Rumsfeld, 2016). This statement epitomises the problem in a crisis; the team must make decisions based on "intelligence" not on "facts", and this requires considerable intellect, combined with a pragmatic mindset, to make rational sense of the situation.

A particular tool used in the evaluation of data in this instance is the Johari Window (Luft and Ingham, 1961) and shown in **Figure 3**. This tool was originally developed for analysing self-awareness in individuals, but it can equally be applied to an organizational situation to evaluate a crisis or scenario. An adaption of this tool was also used by the US Defence department and summarised in Donald Rumsfeld's infamous news briefing of February 2002 "*There are Known-Knowns . . . ; there are Known-Unknowns . . . , and there are Unknown-Unknowns*". This is not a new concept as it aligns well with the teaching of the Chinese philosopher and military strategist Sun Tzu:

"If you know the enemy and know yourself, you need not fear the result of a hundred battles. If you know yourself but not the enemy, for every victory gained you will also suffer a defeat. If you know neither the enemy nor yourself, you will succumb in every battle (Clavell, 1983).

Like any other real-world avenue, the opportunities in HE and especially TNE come with risks attached. The crisis events such as

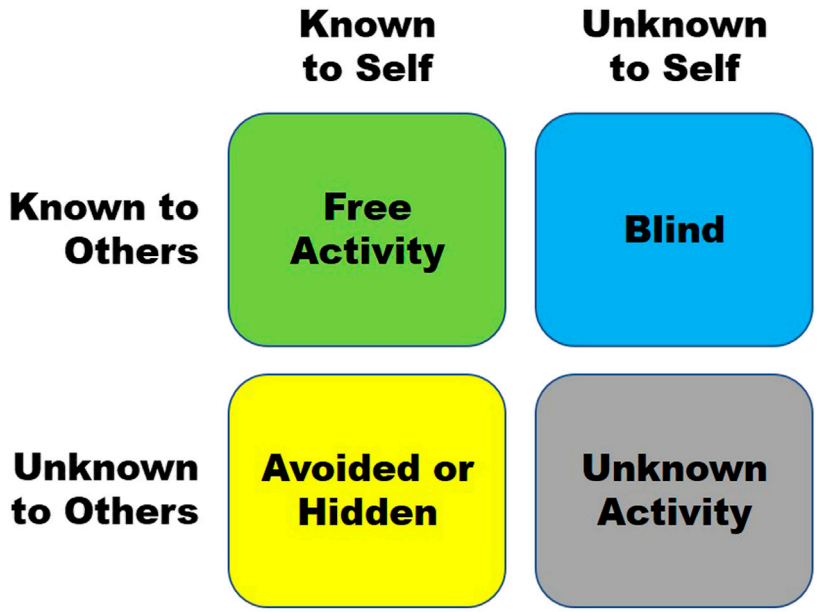

FIGURE 3 | Johari Window of self-awareness.

the bonfire tragedy at Texas A&M University, USA in 1999 and campus shootings at Virginia Tech, USA in 2007 have highlighted the need for crisis management policies and planning in higher education (Wang and Hutchins, 2010). TNE is now increasingly seen through a business lens, and one frequently comes across terms such as "export", "industry", and "market" in this context. Although there is plenty of research on the financial implications and risks of running a TNE program (Wilkins and Huisman, 2012; Tayar and Jack, 2013), studies on the risks involved in the delivery of education in such programs are non-existent. Therefore, with the background experience and knowledge of the management team, it was felt appropriate to apply scenario planning and crisis management to manage the unforeseen circumstances and rapidly worsening situation with the aim of ensuring successful continuation of student learning activities.

The approach taken illustrates how a combination of traditionally disparate tools can be combined to address the crisis caused by COVID-19 in a TNE context. Scenario planning and crisis management are well tested and have been relied upon for many years in commercial enterprises (Chermack, 2004) as aids to long term planning and crisis control. However, it is rare to see these applied in the HE sector to assist in the development of policy (Rieley, 1997; Hašková and Verešová, 2013).

BACKGROUND AND CONTEXT

The collaborative partnership between UESTC, a Chinese "Double First" University (Liu et al., 2019) and the University of Glasgow, a United Kingdom Russell Group University has been in place since 2013, through a dedicated "faculty" in UESTC known as the Glasgow College with an undergraduate population of ~2000 students. The partnership was created to develop greater collaboration and increase both institutions' visibility globally. The benefits and ethos of establishing TNE partnerships have been discussed frequently in the literature (Hénard et al., 2012; Carter and Rosen, 2019; Li, 2019; Lu, 2019; Tang and Tang, 2019).

The dual degree program (Knight, 2016) offers students a combination of the best of Chinese education pedagogy with that of the United Kingdom (Henard and Roseveare, 2000; Bryde and Leighton, 2009). The 4 years BEng degree program, in which English is the sole medium of instruction, aligns closely with the standard non-TNE degree programs in the respective partner institutions, thus allowing a common curriculum to be met by both institutions.

The period covered by this paper is from the January 9, 2020 when the earliest signs of the virus appeared (Evans, 2020), until the end of November 2020, approximately two-thirds through the first semester of Academic Year (AY) 2020/21. It was evident by the 15th January ((AIG), 2020) that the situation was deteriorating rapidly across the whole of China. Public concern began to rise globally and on the 22nd of January the United Kingdom Foreign and Commonwealth Office (FCO) issued advice to avoid travel to the Wuhan area; at the same time the World Health Organization (WHO) issued a Global Health Warning of a serious virus outbreak (World Health Organization, 2020).

CRISIS/CONTINGENCY PLANNING FRAMEWORK

During the ongoing monitoring of the situation, it became apparent that a more formal approach had to be adopted by

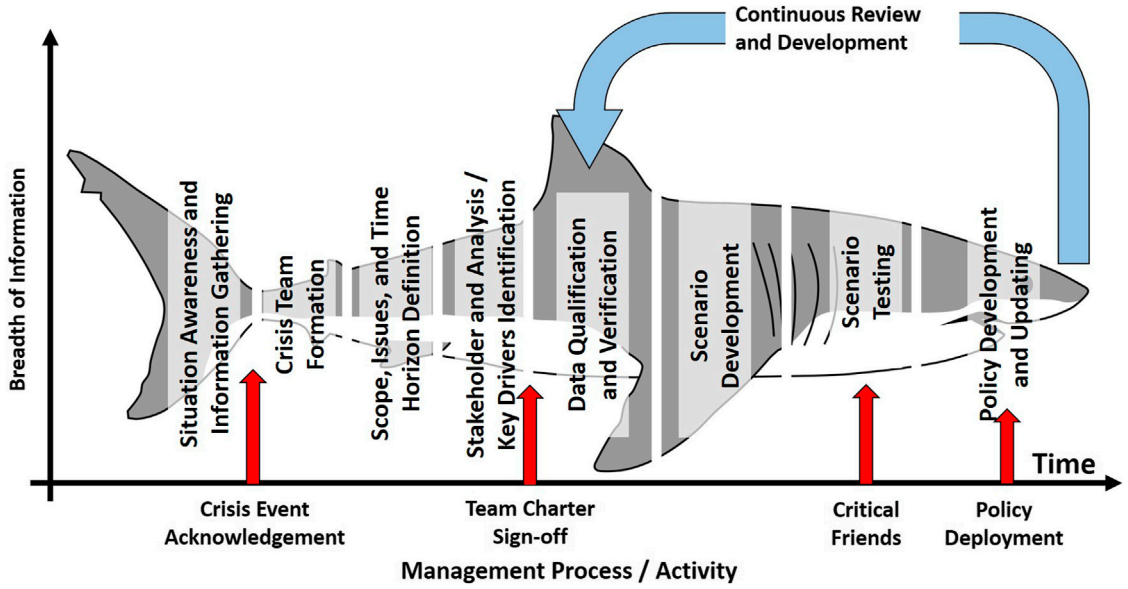

FIGURE 4 | Shark diagram of Crisis Management.

TNE management in Glasgow to manage the unfolding crisis. Crisis management techniques (Smits Stanley and Ezzat Ally, 2003) are well known in industry to deal with disruptions; it was thought that, if combined with scenario planning methods (Preble, 1997), they would provide a suite of tools capable of analyzing the evolving situation to inform the creation of a policy for FIFO staff. The approach adopted can be best summarized as a combination of classic crisis management techniques (Hickman and Crandall, 1997) with the environmental scanning methods regularly adopted by scenario and strategic planning. This is best visualized in a new proposed operational model, referred to as a "shark" diagram (**Figure 4**) which reflects the breadth and complexity of information management in a crisis. The diagram captures the 8-stage process from initial detection through the gestation of the problem, until an effective and practical policy can be created and communicated.

In this section, each stage of the above mentioned 8-stage process is discussed within subsequent sub-sections. *Situation Awareness and Information Gathering* addresses discussion on "Situation Awareness and Information Gathering" followed by understanding the process of "Crisis Team Formation" under *Crisis Team Formation*. At the heart of such management lies detailing the "Scope, Issue, and Time Horizon Definition" that is shared in *Scope, Issue, and Time Horizon Definition*, leading into *Stakeholder Identification and Analysis/Key Driver Identification*, which addresses "Stakeholder Identification and Analysis/Key Driver Identification". Moving towards the implementation domain, "Data Quantification and Verification", "Scenario Development", and "Scenario Testing" are, demonstrated in *Data Quantification and Verification, Scenario Development, and Scenario Testing*. Finally, "Policy Development and Updating" finishes the continuum of our living process in *Policy Development and Updating*.

Situation Awareness and Information Gathering

The first stage in crisis management usually occurs before a tangible crisis has been identified. During this phase, relatively sparse, duplicated, and often conflicting information (Pan et al., 2012) begins to appear across a variety of communication channels; the greatest challenge is in managing the flow of this information and determining its reliability and accuracy. An effective tool in managing such information is a modified Jochari Window matrix (Esposito et al., 1978) which is used to identify and classify known and unknown information from multiple sources. The technique provides a framework within which to cluster and classify information and is useful in articulating and prioritizing "I wish we had . . . " statements. The matrix cannot supply the information but helps direct an intensive investigation to uncover the required data.

Establishing the accuracy (veracity) of each independent source is a significant problem during the early stages of any crisis and is well-researched in operational management (Lozano et al., 2020), where the need for decisions to be made, based on incomplete information, is commonplace (Weber, 1987). The outcome of the first phase is an articulation of the crisis, with a qualitative summary for senior management on how the crisis might impact students; at this stage is not possible to quantify the severity of the problem. However, this situation report, similar to a high-level market horizon scan in a business context (Abu Amuna et al., 2017), should answer the question: "Should a crisis team be formed?"

Crisis Team Formation

Crisis management is a specialist area usually associated with emergency response teams or first responders within a

manufacturing context, or reputational damage in a marketing or publicity context (Coombs, 2007). While reputational damage crises are relatively common in the HE sector, their impact is usually contained. However, in the case of COVID-19, a much larger crisis was evolving, impacting all facets of learning, teaching, and assessment of the students engaged on the program.

Crisis management requires two orthogonal activities; one operational and the other strategic. The "front line" crisis management team predominantly consists of operational managers assisted by subject experts or specialists as required, whereas the strategic team requires longer term managers and leaders. The organisational structure should be flat, with direct communication links between members designed in a star configuration (Pan et al., 2012) to minimize delay, filtering, or lag. Team size should be limited, as the communication load increases exponentially as membership increases. The team leader in a crisis management team must have delegated authority and executive power to implement proposals. In the specific situation described, this role was undertaken by the Vice-Dean at The University of Glasgow, as the Chinese partner university (UESTC) had closed for spring break and all staff were in lockdown. The initial briefing of the crisis management team focused on sharing the situation awareness information, ensuring a shared knowledge starting point.

Scope, Issue, and Time Horizon Definition

With any project team formation, the first step is the definition of a charter covering the scope and issues to be addressed, and timescales for both implementation and intervention. The underlying objective in crisis management is the mitigation of the negative impacts resulting from the crisis but does not extend to identifying a permanent solution; this would be the focus of a follow-on team and is often part of the brief for the strategic team members. The charter agreed for the crisis management team comprising teaching FIFO staff can be summarized in the following eight principles:

- Minimization of any impact to student learning and experience should be paramount
- Technological limitations on home-based students should be recognized
- The status quo (normal operation) should be modified as little as possible on the assumption that "normality" would return eventually (potentially before the end of the semester)
- Any plan should be based on a worst-case scenario but there should be contingency for the event that the situation improved (plan for the worst, hope for the best)
- Wherever possible, the impact of problems should be limited to a single semester to minimize effect on the new academic year (2020–21)
- The most time critical/learning critical issues should be identified and addressed first (therefore, graduating students (Year 4) should be prioritized over year 1)
- A "best fit" approach for the majority of students should be adopted; outliers should be addressed on an individual basis
- Assessment solutions should be robust, irrespective of mode of delivery.

Scope and issues identified in this section provided the direction for the development and implementation of the learning and teaching policy discussed in *Policies and Implementation for Learning and Teaching*. The timescale for developing and putting the plan into operation was the start date of the 2nd semester; 24th March. The intervention would be sustained throughout the semester until the end of June 2020.

Stakeholder Identification and Analysis/Key Driver Identification

When addressing any crisis, it is very easy for the crisis management team to become myopic, focusing only on immediate issues without considering the wider implications of any actions. A method of reducing the likelihood of this risk is to perform a formal stakeholder analysis (Pan et al., 2012). Performing this analysis in the early stages of crisis management enables a robust communication plan to be developed. Through the analysis, the team identified the stakeholders, their relative importance and how best to communicate with them. While the most obvious stakeholders during the crisis were the students and staff, the parents of the students and the two institutions themselves were also of significant importance.

Data Quantification and Verification

After deciding to form a crisis management team, the information supporting the decision is highly qualitative. The 5th stage in the crisis management process draws directly from strategic planning and concentrates on quantifying the data (and sources) and defining reliable metrics. It is imperative that clear targets are defined for the identified metrics, some of which may be in opposition, along with a weighting algorithm to be applied in the quantification process. There are many options available on how this may be best determined (Mendelow, 1981), however, it should be based on building consensus within the team. Simple voting protocols are not recommended as they are divisive and reduce team effectiveness.

Scenario Development

Scenario development principles have been used for many years in strategic planning and are equally applicable to disruptive events. The underlying principles require that the crisis team develop a small number of scenarios they believe to be equally plausible, but not necessarily equally probable. The probability is irrelevant as the underlying premise can be summarized as "*What if . . .* ". Each scenario must be developed to a level of detail where everyone can appreciate and understand the significance of its starting point. The scenarios ranged from students being absent for only three to 4 weeks at the beginning of the second semester to not returning at all until the following academic year in September; this latter scenario proved to be the case.

Scenario Testing

Once identified, each scenario must be analyzed and tested to estimate its impact. Whereas at the scenario development stage the initial conditions and important variables for each scenario are defined, during this phase the team attempts to predict the impact of each scenario as it would play out over time. The team will refer to the metrics and weighting algorithm from Phase five to evaluate the overall impact on the key stakeholders. There is no consideration of probability when analyzing each scenario; the assumption is that the scenario has happened and must be managed. During this phase, there is an opportunity for any assumption to be challenged to test the resilience of the scenario. the outcome should produce a clearly articulated set of three to four scenarios with an estimated impact for each.

Policy Development and Updating

The last phase of the process is to compare the predicted findings from each scenario with the most recent situation report. The team may then decide to discard or modify the weightings attributed to one or more of the scenarios, or to include a previously less likely scenario. Using the information from valid scenarios, a policy document is prepared for staff and students. This may be a suite of separate documents but must be self-consistent to avoid potential conflict. When preparing policy or policy modifications for use in a crisis, there must be clarity of intent and unambiguity in implementation resulting in a highly prescriptive "tone". The new policy must be approved by the relevant stakeholders and communicated effectively to its intended audience. In the COVID-19 example, the team leader held a briefing session with all affected staff. Home-working student counsellors based in China contacted every student and their parents to explain the significance and purpose of the revised policy.

After completion of the revised policy, the crisis management team remain in place to continually monitor the situation for any change that could result in further policy modification. It is also good practice for the team to check the revised policy for efficacy or unintended consequences.

POLICIES AND IMPLEMENTATION FOR LEARNING AND TEACHING

The most immediate challenge for the spring semester of AY 2019/20 was the move to online teaching and learning delivery and assessment, including laboratory activities designed for conventional face-to-face delivery. Nineteen courses were affected, most of which were in technical subjects. In addition, all Year one students took a 40-credit English for Academic Purposes (EAP) course, as part of their ongoing language development within the programs. Student cohort sizes ranged from over 500 in Year one to just under 300 in Year 4, with a total student population of approximately 1,700 students. Of the 19 technical courses, ten were delivered by staff from the partner institution in China in synchronous mode, while the remaining nine courses were delivered asynchronously by UofG staff. Fortunately, all Year four taught modules had already been delivered and assessed in the first semester so students in this final stage of their degree were only working on their Final Year Projects (FYPs). This mitigated the impact on final year students arising from changes required to the learning and teaching delivery and is further discussed in *Final Year Project Policy and Implementation*.

The choice between synchronous or asynchronous delivery was a topic of considerable debate within the management team at the UofG; while synchronous delivery would potentially enable greater contact between students and lecturers in a live lecture hall setting, much of the desired interactivity and immediacy would be lost. Furthermore, there was significant concern regarding the reliability of the network connection between the United Kingdom and China to facilitate online live course delivery for up to 500 students, each accessing the connection from their individual homes across China. Additionally, the 8 h time difference between the United Kingdom and China only permitted a small time overlap for delivery giving rise to scheduling difficulties. Inevitably, these timetabling constraints demanded that either staff or students were involved in "end-of-day" teaching, unlikely to be conducive to a good learning or teaching experience. For these reasons asynchronous delivery was chosen as the most reliable and flexible approach by offering pre-recorded lecture material uploaded to the Virtual Learning Environment (VLE) in this case "Moodle", with follow up live (synchronous) sessions to provide for student-instructor and student-student interaction. This event was be delivered twice to ensure all students had the opportunity to participate, even where technical problems might exist.

Semester 2 Policy for Learning and Teaching

Based on the above decisions, the Learning and Teaching Policy for spring (semester 2) was communicated to UofG staff. Lecturers were asked to deliver lectures by creating and uploading PowerPoint presentations with voiceover, with a recommendation that each lecture would be limited four to five short presentations of approximately 10–15 min including lecturer live or recorded input and audio/video clips. This recommended size and length was based on network channel capacity issues, and pedagogical factors relating to the likely maximum attention span of students. Staff were also requested to prepare additional slides/material in advance to replace real time worked examples normally delivered in a live face-to-face lecture setting.

It was decided to run the follow up live interactive sessions as 90 min (two academic hours) tutorial sessions in the week following lecture delivery. The intent was to allow students to reflect on the taught material so they might raise questions with teaching staff in a real-time. To facilitate this, the platform Zoom, in webinar mode, was used for the sessions, with a recording then uploaded to the VLE to allow student revision and to accommodate any students unable to access the live sessions. The scheduling of these live tutorials was set for evenings (Beijing time) to mitigate issues around the time difference between the United Kingdom and China. In addition to the main Moodle

VLE, teaching materials were also shared through an additional VLE (Blackboard) which was used for UESTC courses and considered potentially more accessible than Moodle, with the support of administrative colleagues at UESTC. The Chinese "QQ" instant messaging software service was also used by UESTC student counsellors to provide all announcements and updates to students.

In courses involving student group work, provision was made to deal with specific learning and teaching requirements however this is outside the scope of this paper but as an exemplar, the interaction required on the Year three Team Design Project was facilitated through the use of Zoom, while individual group meetings used Chinese online services such as "WeChat" or QQ.

Implementation of Semester 2 Learning and Teaching Policy

As a policy requirement, UK-based staff teaching on technical courses delivered their courses asynchronously, using pre-recorded lectures and on-line laboratories. Due to time constraints, teaching staff based their material on existing lectures used in previous years in a face-to-face setting, adapting this for online delivery where possible. Modifications to the format and content were carried out to meet the needs of the new delivery mode. This required content to be divided into smaller "chunks" of learning and the inclusion of video clips and short tasks to encourage student participation and engagement. The result was the rapid transition towards a blended delivery model.

For courses involving laboratories, it was not possible to deliver the lab component in the conventional face-to-face format. Staff, therefore, considered the learning objectives of the sessions and converted these into one of two formats. Design centric laboratories were converted from hardware to simulation style tasks and students were asked to submit their completed work through Moodle. In the case of experimental-based labs, lecturers generated a set of experimental results, which allowed for student analysis and completion of coursework. Both approaches aimed to ensure the same level of cognitive development as face-to-face delivery had provided.

Much of the English course was delivered synchronously (using the Zoom platform) to much smaller groups of 20 students by teachers based in China. This was the normal group size prior to the pandemic as it was recognized that there was a need to maintain this to allow for useful language practice and task-based language teaching and learning to be delivered. When working with these small groups, technological issues were significantly reduced, enabling effective remote face-to-face sessions to be delivered. The facilities that Zoom offered, such as breakout rooms, where students could interact with each other, allowed for group work and face to face speaking practice to continue.

This overall strategy for semester 2 (AY 2019/20) was designed and then implemented to ensure that all students would be able to access learning, irrespective of internet connection reliability, and be able to study at their own pace. All course modules were delivered in accordance with the existing program and module specifications, with minor necessary adjustments while maintaining the Intended Learning Outcomes (ILOs) of each course. Where adjustments were deemed necessary, there was consultation and subsequent agreement reached on these changes with the appropriate external examiners. The VLE became the main repository and vehicle for delivery and the additional materials to illustrate worked examples were also an important course feature. Some courses used web-based tools such as Piazza, allowing students to ask questions and provide feedback anonymously. Although this policy and its implementation was viewed as the best potential approach to provide a rapid, workable solution to the crisis, it was recognized that it would not, and could not, deliver courses which could integrate sustained interaction nor fulfil student expectations in terms of offering a satisfactory mechanism for engaging in their studies. This recognition facilitated the development of a new Learning and Teaching Policy for the following academic year.

Semester 1 (AY 2020–21) Policy for Learning and Teaching

The formation of the new policy was based on staff and student feedback from the spring semester, as detailed in *Conclusion* of this paper, and pandemic-related developments in both countries. In China, as the situation improved to the extent that student returned to campus in August 2020 to undertake final missed exams. For UESTC delivered courses, this meant a return to campus-based face-to-face teaching and learning however, continued lockdown in the United Kingdom combined with travel restrictions led to the decision that no travel to China for teaching duties could be sanctioned throughout the first semester of the new academic year (AY 2020–21).

For United Kingdom based staff it was therefore decided that online delivery would be continued, however it would be modified to become live delivery (real time) through Zoom. The organization was no longer in reactive mode and could incorporate lessons learned in the previous semester, combined with new systems developed to optimize learning and engagement remotely. To avoid over-dependance on network connectivity, the lectures were delivered to a single connection to a lecture theatre in China. At UESTC, the lecture was facilitated by a Graduate Teaching Assistant (GTA). Students would attend the lecture as they would a live face-to-face lecture i.e., in the lecture theatre and viewing the lecture as a group on a single screen, rather than accessing the lecture individually.

As a part of this policy, in addition to students being physically present in the lecture theatres, the lecturing schedule for each remotely delivered course was amended from the normal fly in model, where lectures were delivered in a block of 1 week in four, to weekly delivery. It was hoped this would give students a better learning experience. UofG lecturers were also asked to adopt a hybrid approach to content delivery, preparing short video clips of no more than 15 min' duration, which could be interwoven into the live streamed lecture to provide a variety of modalities throughout the session. The use of video clips also mitigated issues that might arise due to network interruptions or

unreliability, as if any such problems took place the videos could be played locally by the GTA.

During lectures, several activities were integrated with the aim of enhancing student engagement and participation. After each video clip was played, some type of short interactive task took place. This included the use of oral Q and A (live-over-internet), working on design and/or numerical exercises, quizzes, audience polls and "think, pair, and share" activities. The GTAs were briefed on these tasks by the lecturer in advance to ensure they were able to facilitate this kind of interactivity. To further increase student engagement during lectures, staff were also requested to use the Moodle Chat function, which enabled students to have text-based, synchronous discussions. Outside of scheduled lecture time, forums on the VLE were used which enabled students and lecturers to have asynchronous discussions over an extended period, and thus further support teaching and learning. Staff uploaded all materials, including recordings of each lecture, to the VLE post-live session to increase accessibility for students and to mitigate issues arising from connectivity problems during the lecture. All videos included transcripts and/or captioning were prepared in accordance with the University of Glasgow Accessible and Inclusive Learning Policy (University of Glasgow, 2020c). Labs were conducted as normal (i.e., face-to-face), but as lecturers could not be physically present in the lab, additional academic support was provided by local UESTC staff.

Early student feedback on Semester 1, AY 2020–21 delivery, through student-staff liaison meetings and other more informal discussions with students, indicates that the delivery mechanisms adopted have been met with greater enthusiasm from students and could therefore be considered more successful than the "emergency" delivery system used previously. A key factor in this policy implementation has been the use of GTAs to support course delivery. A downside of the revised policy has been the significant additional workload entailed in preparing for and delivering this enhanced learning and teaching model.

FINAL YEAR PROJECT POLICY AND IMPLEMENTATION

The Final Year Project (FYP), sometimes called a "Capstone" project, is an integral component of most undergraduate engineering degree programs. As a Scottish University, whose degrees run over four years, the FYP in Year four runs across a full academic year (2 semesters) and requires the student to demonstrate competence across a wide range of ILOs. To complete the FYP, students must become familiar in activities ranging from software development and simulation to hardware-based experiments. While it might be thought that software development and simulations would not require physical assistance or presence on campus, an issue had been identified that many students may not have access to suitable computing devices and/or software. In addition, as part of course assessment for all FYPs, students must deliver an oral presentation on the final outcome of their project to an assessment panel; with the onset of the pandemic, it was necessary to establish alternative plans to cover all types of projects.

At the early onset of the pandemic, we quickly realised the urgency to re-formulate FYPs. While becoming more aware of the situation on the run and keeping a continuous eye on it with assistance from relevant university departments in both countries, on both ends, we gathered valuable information on of the type of impact to expect for FYP delivery. Based on this, an FYP crisis team was formed, consisting of executive members in both organisations. In the first instance, the scope of issues was forecast along with possible timelines. Primary onus was identified as on the supervisors to make sure the original planned FYPs were able to continue and to identify any required modifications to allow for successful proceedings in absentia of physical facilities. Data was collated across the program, developing understanding of various possible scenarios, leading to specific policy development.

Hence, during the emergency semester (spring) of AY 2019–20 there was a need to develop a remote supervision model for FYPs. This required the review of all projects and where necessary, revision and adaptation of those that were mostly hardware based such that the ILOs could still to be met, while ensuring each project (which had been initiated in the preceding fall semester) could reach a satisfactory conclusion. This led to most of the hardware-based projects being converted into software-based/simulation-based outcomes. At the commencement of AY 2020–21, when students would be back on campus at UESTC, it was anticipated that students might opt to work on hardware-based projects. This created greater challenges for UofG lecturers, unable to travel, and, therefore, not able to meet with the students in person.

There were two main areas where FYP supervision policies were modified: 1) appropriate guidelines and recommendations for supporting students within the remote supervision model were introduced and 2) Greater emphasis was placed on risk assessment and mitigation due to the challenging environmental conditions.

FYP Policy

A policy was developed accounted for the disruptive circumstances and covered the aspects mentioned above. The salient points of this FYP contingency policy document were:

- The supervisor is required to ensure their proposed projects are low risk with respect to its type (i.e., software-based or hardware-based).
- If a project is software-based, the necessary software must be accessible and freely available to the students for use on their personal electronic devices. Where this is not possible for AY 2020–21, the software must be made available on FYP laboratory machines.
- If a project is hardware-based, these should be avoided. However, if students are allowed on campus and, therefore, able to work on FYPs in this setting, this may be permitted. A clear statement of how the supervisor plans to fully support and provide material for the student must be in place.
- Appropriate, effective, and satisfactory actions must be devised by supervisors to mitigate any impact on student

performance caused by the adverse conditions. This mitigation plan must be communicated to students at the beginning of the project to ensure transparency of assessment parameters.
- The FYP coordinator should be informed of any issues which arise over the duration of the project. Concerns and proposed mitigation solutions for all moderate and high-risk projects should also be discussed with the coordinator.
- The Teaching Offices (TO) at both institutions are jointly responsible for ensuring all FYP documentation is kept updated and students informed of any changes initiated in a timely manner.
- In the event of any further pandemic outbreaks or "waves", a 2 week extension will be granted to all students for the submission of the final report even though submission and marking is already done remotely through the VLE.
- As United Kingdom academic staff are unlikely to be able to travel in semester 2 (spring AY 2020–21), oral presentations and demonstrations may be set up and delivered remotely via an appropriate web conferencing application such as Zoom.

FYP Policy Implementation

Based on the above FYP policy for project supervision and assessment, all academic staff involved in supervision are requested to design, review, and propose suitable projects, applicable for successful supervision even under a pandemic scenario. Supervisors still managed to propose projects of a consistently high standard, retaining innovative and creative qualities desired in FYPs. After project allocation, students and supervisors were informed of their respective counterparts at least 5 weeks prior to the beginning of semester 1. They were encouraged to make early contact with each other to establish a good understanding of the project requirements and to clarify how the remote working model would work in practice.

It was highly recommended that supervisors maintain, at the least, a biweekly e-meeting with their supervisees. Such meeting could be conducted using whichever communication channel was mutually suitable to the supervisor and their supervisees, including, but not limited to, Microsoft Teams, Zoom, and/or Skype. A number of supervisors had already found the use of WeChat extremely useful for contacting supervisees for informal discussions beyond their scheduled e-meetings. The students were required and regularly reminded to keep a detailed log of these meetings, including information covering date and time, communication mode, and discussion points. This logbook was then uploaded as an Appendix as part of their assessment submission.

The FYP final project reports were (AY 2019–20) and will (AY 2020–21) be submitted electronically via the VLE, while Microsoft Forms has worked well as a tool for the collection and collation of marker grades and feedback. Final oral presentations were (AY 2019–20) and will (AY 2020–21) be conducted live online via Zoom, with presentation grades being collected via Microsoft Forms. Based on (AU 2019–20) experience, additional guidance and technical support has been put in place to resolve or mitigate any unforeseen issues.

In the last assessment cycle (May 2020), nearly 300 FYP oral presentations were conducted in fifteen parallel sessions over a period of 3 days. In each presentation session, the student presented their work in front of their two assessors via Zoom. All online presentation assessments were conducted smoothly. As minor technological glitches were experienced during the AY 2019–2020 presentation phase, additional guidance and support has been put in place to resolve or mitigate any issues.

In May 2021, it is expected nearly 425 oral presentations will take place. To meet this larger assessment challenge, an approach is being designed that takes account of lessons learned from previous years by increasing the number of parallel sessions.

ASSESSMENT POLICY AND IMPLEMENTATION

In any education system, assessment plays a pivotal role in driving student learning and impacts upon the relationship they have with the curriculum. The assessment at individual course level has a direct correlation with the content and input the lecturer delivers. At the institutional level, assessment policies and practices must demonstrate fairness, equity, and reliability to all external stakeholders. These policies are also influenced by external stakeholders such as professional accreditation bodies (Anwar and Richards, 2018). At the UofG, the assessment policy is set at the institutional level through its own regulatory code, Glasgow University Assessment Policy (University of Glasgow, 2020a).

There are two main types of assessments employed by the joint program at Glasgow College, UESTC. Continuous assessment (CA) covers assessment that is undertaken and submitted during delivery of the course and on most technical courses, provides up to 25% of the overall assessment weighting, whereas in the English language courses, 70% of the overall assessment is covered using CA during semester time activity. The final written exam or End-of-Term Assessment (EoTA), which takes place in an invigilated environment during the "exam diet", constitutes the balance of the course assessment (75% in the case of most technical courses).

Within technical courses, CA might include reports on laboratory-based experiments, project work assignments, in-class quizzes, or set exercises. Most CA is normally submitted as an assignment uploaded to the VLE (Moodle). During the pandemic, activities requiring the completion of CA e.g., for the lab report, required review to ensure that the assessment was still valid and fair. During semester 2 (AY 2019–20), experimental tasks and activities involving the physical use of electronic hardware had to be redesigned so that software and simulation-based alternatives could be adopted. GTAs, who would normally assist in conducting the experiments, had to be retrained to implement the redesigned CA activities in an online environment.

The EoTAs presented an even greater challenge, due to the need for a secure, invigilated environment in which to conduct an exam. By the end of the spring semester in May 2020, COVID 19 was under relative control in China but students were still not

permitted access to the campus. In response to the pandemic, UofG assessment policy, as in all other United Kingdom HE institutions, had been amended to take account of the complex circumstances surrounding assessment and to ensure that students were not treated unfairly. A new No Detriment Policy (NDP) was put in place, which included the requirement to make all final assessment available online.

As the students were *de facto* University of Glasgow students they were subject to this new policy. However, due to the structure of the TNE partnership demanding that the views of both partner organizations be considered, it was not possible to carry out EoTA online. Although TNE staff in both institutions had prepared and run an online assessment as a pilot test, UESTC staff were reluctant to implement this. In part, this was a result of a recent, poorly executed online exam that had caused problems at UESTC, but in addition, there was concern related to exam security and fairness, combined with the belief that students would return to campus in time for the end of semester 2 exam diet. This demonstrates a real-world challenge in decision making for TNE programs, where the requirements of different educational systems and cultures may cause difficulties. In the end, the students were not able to return to campus and all semester 2 EoTAs were postponed until August when the students returned to campus for AY 2020–21. The exams were scheduled immediately prior to the commencement of the new academic year.

The No Detriment Policy

Early in the pandemic, UofG introduced a detailed assessment policy to ensure a timely progression or completion of courses, in which students' grades would not be adversely affected by the situation (University of Glasgow, 2020b). As Glasgow students, the TNE students were permitted to benefit from the policy in two specific areas:

- Any student could resit an examination with no penalty (i.e. they could try and improve their grade and were awarded the best grade from the two attempts)
- Any year 1 or year 2 student received an automatic progression to the following year irrespective of exam performance (these years do not contribute to overall GPA in UofG)

However, some aspects of the UofG NDP policy enacted gave rise to some conflict with UESTC policy. Although a student's GPA in UofG is only based on years three and four of study (in line with many United Kingdom Universities), UESTC use all 4 years in the calculation. The consequence of a "free" progression into the following year would impact the GPA calculation. The compromise reached was that students in all years must sit the exams, but if they failed to reach the desired standard to progress, they were permitted to progress under the NDP. The students who "benefited" from this were usually the weaker ones and despite advice to resit the year, made the decision to progress regardless. Regrettably, it is anticipated that those students who elected to progress against the advice of staff may now be struggling.

The second impact of the NDP reflects a cultural difference between United Kingdom and Chinese students. In the United Kingdom, only a small number of students elected to resit an exam, and usually only where they had achieved poor results; most choosing instead to retain their first attempt grade. In contrast, the majority of the TNE students chose to resit even if their original mark was very good. This resulted in a large, unplanned marking load for staff (who were now engaged in teaching the following year cohorts). Out of a total of 1,464 students that undertook EoTAs in August 2020, 1,267 students availed themselves of the opportunity of retaking either the EoTAs or CAs in October. For future reference, careful consideration must be given to policies such as NDP to identify unintended consequences.

INFERENCES, REFLECTIONS, and RECOMMENDATIONS

The TNE policy planning and development was initiated soon after the onset of the pandemic in January 2020, with a range of revisions to the initial policy models implemented as circumstances changed. There was a need for informed decisions to be made to ensure any revisions made were robust and based on evidence. To facilitate the first set of revisions, staff and student feedback was sought, collected, and analyzed both during and after the Spring semester. To ensure an effective continuous review loop, a second phase of student feedback was conducted during Fall semester of AY 2020–21. To this end, it is important to note that the inferences given in this section are based on preliminary data and therefore should be treated as suggestive since the data is yet to be reported in academic literature.

In this section, first, a summary of the inferences from semester 2 (Spring) AY 2019–20 will be shared in *Inferences From the Spring Semester (AY 2019–20)*. Next, an initial feedback on the updated policy for semester 1 (Fall) AY 2020–21 will be presented in *Inferences From the Fall Semester (AY 2020–21)*. This will be a summary of the feedback gathered after revisions to the original policies were made and implemented, which aimed to assess if the policy review process had helped to improve student perception of the learning and teaching model in operation. Finally, *Recommendations* will layout the main recommendations made to assist the policy making process in situations where similar academic disruption takes place in future.

Inferences From the Spring Semester (AY 2019–20)

The main purpose of surveying students and staff both during and after the spring semester delivery was to gather data which would inform the management team on the perceived strengths and weaknesses of the "emergency" policies put in place, identify potential pitfalls, and provide evidence for improvements that could be made for future course and program delivery, in particular for the following academic year (AY 2020–21; Semester 1).

The crisis and the need for major change brought about an increase in the workload of TNE academic staff at UofG. Based on the initial L and T policy, lecturing staff were required to make, in some cases, quite dramatic adaptations to their course structure in an extremely short time frame. These changes included understanding a different teaching pedagogy as well as creating or adapting course content to align with an online delivery model. For instance, some staff members had to revert to simulations-based lab delivery for subjects which would normally be conducted through physical experimental setups. This needed considerable adjustments not only to the lab content, but also changes were needed to be made to lecture content to appropriately align lecture theory with the lab experiments.

An early feedback from staff focus groups yet to be reported in the academic literature suggests that the staff are appreciative of management realization about the challenges of transition to online delivery. It is possible that staff did not wish to be perceived as overly negative or obstructive, given the crisis facing all HE institutions.

Some initial feedback from students, on the other hand, showed signs of discomfort and anxiety in adjusting to online teaching and complained that home environment was not best suited for focused learning. Also, there were some suggestions around the improvement of IT facilities and broadband connectivity.

The opportunity to gather feedback through the systematic collection of data was very limited. However, the information gathered did serve a purpose; it highlighted the importance of engaging students and staff in the policy making process. It was possible to identify ongoing challenges people face and use this information as a vehicle for updating policies, to support learning, and to ensure that there is a focus on both student and staff well-being. It is also clear that maintaining a clear information flow for all parties is essential so they are able to understand the rationale behind the procedural and policy changes.

Inferences From the Fall Semester (AY 2020–21)

As mentioned earlier, the L and T delivery policy was amended, partly based on student and staff feedback, but also in reaction to changing circumstances in both China and the United Kingdom. During the implementation stage of this revised policy in semester 1 of AY 2020–21, staff and students were kept in the loop to identify any potential improvements.

It was noted that the staff were generally satisfied with the role of the GTA in the remote delivery and emphasized that the GTA role was overly demanding under current circumstance. Some of the platforms mentioned in the policy guidelines did not work as expected and a need of more inclusive online platform was identified.

Some preliminary student data was gathered which provided some valuable, if imperfect, insights into the policy implementation. The data is suggestive that very few students believed that online lectures could replace physical (face-to-face) lectures in the future. However, the students appeared to be more supportive of the use of technological tools and might be more comfortable with a hybrid approach, combining face-to-face delivery with online tools to support learning and teaching in the future.

The students were appreciative of the fact that lecture videos with subtitles supported the verbal communication. However, the students also highlighted the challenges regards to staying focused for long intervals during online delivery.

The feedback showed clear signs of improved student L and T experience delivered through the implementation of updated policies for semester 1, AY 2020–21. However, it was evident that it is extraordinarily challenging to replace physical delivery with an online system and therefore, there were still some areas of improvement that would need further reflection and update for semester 2, AY 2020–21.

Recommendations

Based on the data presented here, certain aspects of L and T delivery need particular attention to deal effectively with future unforeseen disruptions as have been faced this year. Staff are the main players in any L and T policy implementation and, therefore, should be involved throughout the policy development process so that their time, skillset, and resource limitations are considered. The most commonly occurring recommendations drawn from the data are:

- Student involvement through channels such as Student Representative Councils (SRCs) should be prioritized in order to develop policy development that meets student needs and requirements.
- All involved parties, including academic and administrative staff, students, and in the case of Chinese TNEs, parents, should be provided with clear and timely information to facilitate successful policy implementation.
- Technology should be harnessed to support student engagement. This requires regular good practice and knowledge sharing sessions amongst staff and students.
- Policy should include alternative approaches for delivery and assessment to mitigate technology failure and loss of internet connectivity.
- Academic staff should be trained and supported to develop their teaching practice based on online teaching pedagogies.
- Policies should take account of online teaching and learning challenges, such as the time to prepare teaching materials, student engagement issues and student attention span.
- More data, gathered over longer timeframes, should be collected to inform all future policy making.

CONCLUSION

Undoubtedly the impact of the COVID-19 virus has been one of the most significant to have affected the world and is expected to continue to impact all facets of life over many months. While there is little that an organization can do to guard against unknown threats or disturbances, there are actions, processes, and tools that managers can and should adopt to ensure early

detection of emerging threats. Using tried and tested planning tools, it is possible to construct a set of scenarios and analyze the likely impact on operations. Scenario planning is a well-known method used in strategic planning; it is less often used in crisis management, either in commercial enterprises or the Higher Education sector, and some basic training in the application of these tools beyond the organization's "first responders" would be prudent. In dealing with this crisis by using a combination of these classic crisis management methods and scenario planning, the management team of this TNE operation in both institutions were able to predict the likely impact on their students and estimate the severity of such impact. This early detection facilitated the development of a pro-active policy that placed the student at the center of the policy development process. Taking this approach allowed the implementation of online learning, teaching, and assessment to proceed in a well-managed and planned fashion. Through a reflective approach it was also clear that while every action was taken with the best intentions, some of the outcomes were more successful than others. An obvious example of this was the initial choice of asynchronous delivery of lectures; this was done to ensure continuity of learning but failed to meet student-lecturer engagement expectations. In contrast to that was the recognition by students that developing autonomy in their learning was a positive and hitherto unconsidered outcome. The most significant lesson learned through this entire episode is the importance of communication between the TNE partners. Through the establishment of regular and formal update meetings, student learning, teaching, and assessment activities were able to continue in a planned and managed way despite the impact of sequential lockdowns on both Chinese and United Kingdom staff. While it is easy to be overly self-critical when in the midst of a crisis, looking back at what was achieved by the partnership over this incredibly difficult period was quite remarkable; like Neurath's mariners (Cartwright et al., 1996) we were able to reconstruct the vessel while at sea.

AUTHOR CONTRIBUTIONS

All authors listed have made a substantial, direct, and intellectual contribution to the work and approved it for publication.

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