Vol 9 | Issue 2 (2021) | pp. 82-90

JOURNAL OF
Perspectives in Applied Academic Practice

www.jpaap.napier.ac.uk

Togetherness: The central tenet of an effective institutional online pivot

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ABSTRACT

This case study explores a collective response to the challenges of learning and teaching within the College of Science and Engineering at the University of Glasgow in the context of the COVID-19 pandemic. The College comprises seven diverse schools, each of which has a rich and heterogeneous pedagogical culture. As soon as national lockdown commenced, we identified an immediate priority to devise and implement a flexible approach to learning and teaching for the incoming academic year. Flexibility was an inherent requirement of our approach because of the uncertainties we faced in terms of changing government guidance which dictated student travel and presence on campus in Glasgow. This led to considerations such as whether students were able to connect and engage remotely worldwide. This narrative report presents our institutional strategy over nine months, from the formation of an interdisciplinary flexible learning committee, through the various stages of planning, to the successful delivery of a semester of remote teaching. We explore various factors that contributed to this positive outcome. Activities to support our institutional pivot include: (1) developing exemplar specifications for model courses; (2) trialling early adoption of new technology platforms; (3) mediating central messaging to each teaching unit; (4) sharing good practice within and between teaching units; (5) developing remote labs; (6) incorporating student experience in a dynamic feedback loop; and (7) supporting student wellbeing. The common theme running through these activities is the sense of a 'campus collective' with a 'distributed leadership' model.

Keywords: COVID-19, pandemic response, remote pivot, learning strategy

1 Introduction

In late March 2020, Scotland entered a national lockdown in response to the COVID-19 pandemic. Society at large faced massive challenges; many of these difficulties were encapsulated in the university community. Along with most UK higher education providers, the University of Glasgow immediately pivoted to fully remote learning and teaching as an emergency reaction. In tandem with this rapid switch, the Head of the College of Science and Engineering (CoSE) set up a small working group of flexible learning leads, with one member drawn from each School in the College, following the 'distributed leadership' approach of Fernandez and Shaw (2020). The twin responsibilities of each champion were (1) to act as a local contact point for enquiries and support requests from colleagues, and (2) to liaise with other champions to shape and share best practice. The authors of this paper are the representative flexible learning leads from each of the Schools. Each flexible learning lead would then disseminate ideas to local School networks in discipline-specific ways. We agreed that it was not essential for everyone to do exactly the same thing, however, sharing ideas and challenges can help work through them and adapt accordingly. We had a direct link to the College management structure through the Dean of Learning and Teaching. This helped with information flow and expedited decision making.

The overarching remit of the group was clear and ambitious: to identify ways to reconfigure teaching delivery to maximise our resilience to whatever scenario we would face. Our flexible learning group engaged in medium-term planning for the next academic year, rather than any immediate emergency response. We prepared for a 'move to online' as characterised by Crawford et al. (2020).

The College of Science and Engineering at the University of Glasgow is a faculty-level organisational structure, comprising seven academic schools: Chemistry, Computing Science, Engineering, Geography and Earth Sciences, Mathematics and Statistics, Physics and Astronomy, and Psychology. The College has approximately 430 research and teaching staff and an undergraduate student population of around 5,200. Within Schools, each discipline establishes the framework for their teaching activities as appropriate to suit the needs of their students.

This case study paper summarises our experiences as we shaped and managed a flexible learning strategy across our seven Schools. The most important aspect of practice that emerged from our working was the power of collegiality, or togetherness. While this may have been a discovery in society as a whole, we aim to narrate our microcosm experience in the College of Science and Engineering at the University of Glasgow. Throughout the difficulties and disappointments of the past year, we leveraged the

sharing of best practice with a balance between tackling problems locally and drawing on wider expertise. We benefited from shared practice across our institution; now we want to disseminate our findings more generally.

One key challenge is the sheer diversity of our College. In terms of teaching, there is a spectrum from paper-based theoretical to experiment-based practical courses. Class sizes range from five-person tutorials to 500-person lectures. However, we broke down barriers and shared this common challenge to spread ideas across our College. We established direct lines of communication between subject-specialist areas. Further, we collectively responded to University-level policy issues of general interest beyond our College, such as an increased workload and staffing requirements for teaching-resource preparation. The collective cross-disciplinary group was able to make more persuasive arguments than any single department. We cut through bureaucracy, taking previously unthinkable direct routes to allow us to be sufficiently agile in response to these unprecedented circumstances.

This collaborative approach to pandemic problems was also deployed in an inter-institutional context. For instance, the Russell Group of UK Universities convened a Deans of Science working group that met regularly to share ideas and concerns around teaching delivery during the national lockdown. In brief, the 'habit of hive-solving problems' is an effective means of maintaining academic provision during unanticipated emergency circumstances (Seeley, 1995). The key contribution of this case study narrative is to highlight the power of togetherness as a meaningful construct to underpin an institutional emergency response in Higher Education as, like in many other sectors, the uncertainties in Higher Education were numerous (Johnson, Veletsianos & Seaman, 2020).

In April 2020, our flexible learning leads group held an initial meeting to map out the challenges we were facing and establish a shared understanding of the range of scenarios to which we might need to respond; we explored the options broadly available to us to increase our flexibility in the face of the developments that could ensue, discussing ways of working both within Schools and as a team across the College to develop specific solutions. We identified community as a key challenge, ensuring we had a sense of community within each School, as well as encouraging students to feel that they belong to the University. We needed to manage expectations, for both staff and students. Ideally, this would involve sharing information as early as possible to explain why we could or couldn't do certain activities while recognising that the situation was not stable and therefore subject to adaptation at any time.

The aim of this paper is to outline how we faced this collaborative pivot using examples from across all Schools within the College. Section 2 outlines how we worked collaboratively with our institution, colleagues, external partners, and students to successfully deliver our programmes; Section 3 reflects on the outcomes of our response, before a brief conclusion in Section 4.

2 A collaborative pivot

As we planned our College strategy for flexible learning, we were aware of the need to take all colleagues with us on the journey. In this section, we review a selected set of policy decisions and activities that helped to foster this sense of community action.

The flexible learning group started work in April 2020, with a view to managing a smooth delivery of teaching in the academic year commencing September 2020. Over this six-month period, the group members rose to the challenge of demonstrating leadership through uncertain times, recognising the challenges whilst working collaboratively with colleagues to ensure clear planning and organisation in time for the start of teaching in September.

The remainder of this section outlines the broad range of aspects our working group considered during the institutional pivot.

2.1 Developing exemplar specifications for modules

We took advantage of the online pivot to rejuvenate a number of modules for the academic year 2020–21. In particular, we selected two very different courses: (1) a first-year Electronics module with significant lab-based practical activity, and (2) a final-year Professional Skills and Ethics module involving team-working. These two modules were modified to make them appropriate for flexible delivery; we anticipated teaching would be remote, but we tried to retain the option of face-to-face components that could be swapped in for remote activities if circumstances permitted. We developed the module specification documents as quickly as possible, well before the start of teaching for the new academic year, which provided the opportunity to circulate these redesigned specifications to colleagues for inspection and discussion. In fact, the module specification update procedure was adapted in response to the pandemic to enable Schools to adapt their courses with direct approval from the Dean of Learning and Teaching, rather than having to go through the usual multi-stage review. Interestingly, this has highlighted unnecessary elements of this procedure, and revealed how having professional trust in the academics can make this process more efficient and effective for the longer term.

For each exemplar redesign, there were two key deliverable documents: (1) a high-level course specification document for inclusion in the University's online course catalogue, summarising the teaching delivery in terms of structure, content and style; and (2) a detailed teaching plan, outlining the precise set of learning activities each week, including teaching and assessment components. The redesign effort used the ABC curriculum design model (Laurillard, 2012) and was led by the relevant lecturing team in a collaborative manner with input from a student-learning support officer, a disability adviser, the academic development service, and a flexible learning champion. This diverse team met three times for each course, via Zoom. We did not include

students directly in this co-creation activity, which was a potential missed opportunity, but due to the nature of this change and the time of year it took place, our possibilities for including a student representative on the team were very limited.

The redesign requirements were to enhance module flexibility, with a blend of synchronous and asynchronous learning activities, expanding the use of online, easily accessible resources, facilitating remote peer interaction, and building resilience to potential disruption such as staff or student illness throughout the semester. Nerantzi (2020) outlines a set of active learning requirements for course designers, which we implemented to support the flipped classroom approach.

Courses redesigns were completed early for these two modules. The design process and outputs were presented in remote seminars to other colleagues, with documents circulated widely via local file-sharing sites. The intention was to promote ideas for colleagues to consider as they made their course adaptations to prepare for remote delivery.

2.2 Trialling early adoption of new technology platforms

Although different subjects have discipline-specific activities (e.g. labs, fieldwork), there are common teaching modalities (e.g. lectures). Where possible, we standardised the delivery model for large group teaching into three different approaches: (1) pre-recorded videos, (2) online live lectures, and (3) 'watch-party' live lectures. The Zoom platform was preferred for these large group activities with video and voice communication.

One key challenge involved aligning our new delivery methods with the technology provision framework of the University and the computing equipment available to students at home. We made some investment in expanding our provision at short notice, based on academic feedback and direction. Some newly acquired systems worked effectively and integrated neatly with our existing portfolio whereas others suffered issues in terms of stability and scalability. This need for enhanced digital resilience (Bhagat & Kim, 2020) caused friction in the standard University procurement process. However, we found it was important to provide a set of flexible technology platforms that would work on a range of platforms from smartphone to desktop PC, since our students are working remotely using their own devices throughout the world.

In common with earlier pivots due to societal disruption (Ayebi-Arthur, 2017), our use of the existing virtual learning environment (VLE) became more ambitious, as we employed a wider range of features, e.g. question banks and uploading videos for pre-recorded lectures. Some colleagues preferred the Microsoft Teams platform as an alternative VLE due to its more informal user interface.

We had decided within a couple of months that all staff must be equipped to deliver tutorials and record lectures from home. We used available funds to purchase microphones, document cameras and other required IT accessories. Since this was an urgent need, we resolved things locally and pragmatically, buying inexpensive consumer devices via online vendors to avoid procurement delay. We established a laptop loan scheme for staff and students, to mitigate for lack of suitable home IT resources. This included provision of broadband internet in a small number of cases of data poverty (Donaghy, 2021).

2.3 Mediating central messaging to each teaching unit

As the stream of information and the palette of resources provided centrally by the University grew increasingly wider, the flexible learning leads also acquired a role as information brokers. It became clear that many colleagues were looking for targeted, practical advice that was aligned with each School's needs and policies. This meant aggregating, then curating (Whitworth, Garnett & Pearson, 2012) information and resources germane to the local situation; distilling the stream of 'what you can do' into more targeted advice: 'this is what you should do (and how to do it)'.

The format in which this digest was delivered varied between schools: Moodle sites with 'recipes' for specific tasks; Q&A forums; weekly emails; informal online drop-in sessions; or presentations at staff meetings. The school leads were able to give the institutional messages a friendly, but also more compelling, 'local voice'. At the same time, being familiar with the wider picture, local circumstances, and individual needs, they provided tailored first-level support to colleagues in implementing those messages.

2.4 Sharing good practice within and between teaching units

We convened a summer series of lunch-hour interactive Zoom seminars. A typical seminar consisted of multiple short presentations on teaching practice from a range of disciplines, along with live questions facilitated via text chat. Each event was well attended, with over 100 synchronous viewers and more people watching recordings later on.

Since the seminar delivery mode was deliberately modelled on how we would expect students to engage with their learning in the next semester, this was a form of participative learning for teaching colleagues (Warhurst, 2008). The seminars became a practical introduction to the Zoom lecture format, focusing on topics that would be of interest to colleagues in general, while giving them insight into the potential of this remote delivery format. There were also focused upskilling sessions, organised by learning technology officers at the University. Again, these were broadcast live and recorded for future viewing. We directed peers towards the most relevant recordings as they encountered particular technical issues.

Some colleagues championed particular styles of remote lecture, such as the 'watch party' approach (Nordmann et al., 2020). Again, we ran demonstration watch-party lectures for colleagues and provided documentation to explain how to set up such events. Information sharing happened naturally in our flexible learning core group, through regular online conversations. We acted as a conduit for information between the various schools and sub-disciplines.

2.5 Developing remote labs

For many disciplines in the College, practical labs are an essential component of teaching. In most cases, labs normally take place in dedicated spaces and rely on specialised equipment. The physical distancing requirements and occupancy restrictions meant that available face-to-face capacities were extremely limited and had to be rigorously prioritised. It was clear from the very start that providing adequate online substitutes for inherently practical, hands-on activities would arguably be the biggest challenge we had to overcome. We illustrate the considerations and approaches using examples from several Schools, outlining four key concepts:

1. Prioritising the use of free open source software.
2. Consultation with accrediting and other external bodies.
3. Using online space for communication and support.
4. Maintaining institutional identity

2.5.1 Prioritising the use of free open-source software

We endeavoured to use open-source software where possible, such as RStudio and JupyterLab for online coding labs. This enabled accelerated deployment and allowed students to use a wide variety of devices to run the software. We relied on remote desktop clients for students to access institutionally licensed applications. It is certainly useful to have a varied portfolio of open-source software since remote desktop servers are sometimes unable to handle high load.

For example, in the junior years of Physics and Astronomy, we focused on developing key laboratory skills in the first semester, including computing skills via the use of Excel spreadsheets or Python notebooks for data analysis, while the second semester focused on at-home experiments that could be undertaken in a simple way by all students without additional specific equipment other than a computer and a mobile phone. In Psychology, we had made the move away from commercial, closed-source software to R already a few years ago, with resources for data skills development being shared on the VLE. This led to adaptation of how we support students on data skills development using open access software removing the issue with accessing licensed software on campus. In Chemistry, some of our laboratory modules already used the Learning Science online platform for pre-lab activities (such as interactive simulations) and post-lab worksheets (instead of paper-based reports), which allowed us to cover the 'dry' lab aspects. On the basis of our positive experiences and existing working relationship, we extended our portfolio with Learning Science to deploy online lab resources across all labs where appropriate, even though it is a commercial, closed-source environment.

2.5.2 Consultation with accrediting and other external bodies

Togetherness did not only apply to our College, but looking beyond our institutional walls enabled us to share resources and practice. Several of our colleagues in Chemistry have been actively involved in the #DryLabs20 network (Campbell, Challen, Turner & Stewart, 2020) since its inception in April 2020. The regular online meetings were an important platform for sharing best practice and experience for 'dry' chemistry labs across the UK and world-wide. Similar initiatives were started in other subjects, e.g. Physics (Physics Learning and Teaching in Higher Education Community Meetings [Physics-LTHE], 2021; Strubbe & McKagan, 2021) or Biology (#DryLabsRealScience, 2021). It is also worth noting that some institutions chose quite different approaches to make up for the lack of face-to-face labs, e.g. by sending out experimental home kits to students (Caruana, Salzmann & Sella, 2020). Like many universities, we followed a virtualised lab approach to avoid logistics problems with kit delivery and to enable group learning in remote lab settings.

The sharing of good practice within the School of Physics and Astronomy more widely among national networks such as LTHE-Physics (Physics-LTHE, 2021) played an important part in supporting these developments. In Psychology, we connected with our accrediting body, the British Psychological Society (BPS), in developing and implementing guidance for BPS-accredited programmes in psychology in relation to the Covid-19 outbreak. For example, this provides recommendations on data collection for final-year empirical projects without access to labs and face-to-face participation in student research.

2.5.3 Using online space for communication and support

In Chemistry, even with a good selection of off-the-shelf online content available (such as interactive simulations of standard operations in a synthesis lab), lab heads and experiment leads, supported by GTAs, invested substantial effort into tailoring the material and/or developing their own resources. In particular, this included filming experimental procedures and equipment as well as pre-recording data for delivery online. The online labs also required new ways of supporting students. We initially anticipated that some computer-based labs, for example in Psychology and Computer Science, would transfer more easily to a remote setting. However, we found that we lost the natural student peer interactions and group social aspects, which could not be

replicated easily in the virtual environment. This was a major concern especially with regard to incoming students transitioning into our Schools, i.e. Level 1 and PGT programmes.

Over all our Schools, we developed a number of ways to facilitate student connection with their peers as well as staff. We offered online drop-in sessions with GTAs, forums for asynchronous questions, and Teams channels where students could collaborate, share data, and ask questions. In Psychology, we set up a Team for each year, with a channel for each course, where students very effectively supported each other as well as connected with staff. In Level 1 Psychology, we created a channel for each lab, so students felt they had a dedicated online lab space. Student feedback on these online spaces was very positive at all levels.

In Physics and Astronomy, our experience in teaching innovative laboratory skills in an international summer school over several years proved invaluable. In Year 2 and Honours years, laboratory heads focused on selecting a sub-set of experiments to demonstrate over pre-recorded videos, providing data sets, and developing supporting guidance for the students.

2.5.4 Maintaining institutional and School identity

Our overall approach relied heavily on content produced, or at least customised, in-house, rather than off-the-shelve 'virtual lab' solutions, which allowed us to give the students a more personalised, targeted experience with a 'Glasgow flavour'. Many of the online resources we developed will be useful to complement and enhance face-to-face labs in the longer term, so there is a lasting return-on-investment. In Chemistry, several final-year projects focused on developing online content for labs, exploring new technologies (e.g. H5P in Moodle or Numbas (Newcastle University, 2021)).

Psychology used their PsyTeachR research methods curriculum, which is open-access and widely recognised across the sector as unique to University of Glasgow Psychology, with additional materials involving all members of the lab-teaching team for that course being present and visible in pre-recorded and/or live delivery. This ensures students were familiar with the team as a whole rather than having one point of contact.

In Physics and Astronomy, everything was done in-house as no straightforward solution offered by learning technology companies was deemed to be flexible enough to cover our specific needs ranging from first-year teaching to honours-level labs in a Scottish institution like ours. A massive effort of adaptation to this new mode of delivery was undertaken by laboratory heads, supported by technicians, demonstrators, and the local flexible teaching group.

2.6 Incorporating student experience in a dynamic feedback loop

The togetherness did not limit itself to staff communication and collaboration but extended to our students too. Managing expectations was a significant challenge ahead of this academic year like no other – staff were using new technologies and practice with limited experience and testing: How do we deliver with confidence and reassurance?

The message of 'being in this together' was very important and led to a mutual respect between staff and students, with both sides facing their own challenges (Kaye-Tzadok, 2021). For example, seeing inside staff homes helped break down some of the barriers that students may feel when approaching staff and created a different dynamic in the student–staff interaction. Bringing this human element into our practice resulted in students feeling more connected to teaching staff as anyone's internet connection could be interrupted or kids and pets could wander in during class.

Our class and Student Representative Council (SRC) representatives are valuable members of our team, making significant contributions to our planning and provision. In some aspects, the wide-spread use of online communication technologies has facilitated and strengthened this collaboration and allowed for prompt, informal exchanges, e.g. via Teams chat, rather than waiting until the formal student–staff liaison committee (SSLC) meetings, which occur once per semester. For example, in Level 4 Psychology, the student reps communicated consistently that weekly messages from the programme lead were very well received. Students built their own communities and communication channels, so having an open line enabled student reps to flag up issues in real time.

As another example, the Convenor of Learning and Teaching in the School of Physics and Astronomy, together with the School's Flexible Learning Lead and other colleagues as appropriate, organised additional meetings with the class representatives at various points in the year to complement the two SSLC meetings. This new initiative was clearly appreciated by the class reps. The School also set up several meetings for each year group at undergraduate and taught postgraduate levels to discuss the organisation of the online remote examinations and answer students' questions. These meetings were very well attended and recordings were made available to all students in the School. Students at all levels had numerous opportunities to provide feedback via short online surveys on various aspects of the online learning and teaching experience. As expected, the number of responses decreased over time but these surveys helped us understand how we could better manage expectations and adjust delivery methods.

The SRC school representative attends the monthly meetings of the Learning and Teaching Committee, which is the main forum for teaching-related matters at School level. Having student representation on the committee has enabled staff to integrate the student voice into, for example, how we can maintain best practice in group work whilst students are in different time zones, with differing preferences for having cameras on and speaking different languages. Feedback from class representatives made a significant impact when they told us what was or was not working. For example, reps indicated that the reason for the relatively low turnout in support groups was the plethora of 'organised socialising' events run by other Schools, student clubs, etc. and the dense schedule of assignments, quizzes, etc. imposed by some courses. Chemistry 1 adopted a more 'laissez-faire' approach, with

two class tests during the semester but, e.g. no weekly lab deadlines. Despite the higher demands on self-motivation and time-management, this was seen as preferable, at least in combination with those more strictly paced courses.

The togetherness works both ways, and this year has highlighted even further that doors must be open on both sides for communication and connection between staff and students to enable everyone's journey to continue.

2.7 Supporting student wellbeing

This online pivot did not occur by choice but as a response to a global pandemic that has impacted us all. If we want students to engage, we must provide a supportive environment that students want to engage with to counteract the remote nature of the provision. This raises two challenges: firstly, how do we enable students to connect with each other; and, secondly, how do we enable students to connect with staff. Alt (2016) outlines an approach to learning and teaching practice acknowledging the three key tenets of the social-constructivist learning environment: constructive activity where we support students in 'learning to learn', teacher–student interaction rather than passive delivery of information, and social activity to facilitate connection to their School.

Students connecting with each other is a challenge at all levels and years, but perhaps most for those students that are transitioning into our programmes such as first-year and MSc (post-graduate taught) students (Bownes et al., 2017). This has been recognised across our Schools, with class leads taking responsibility for the academic side but also for the social connections and activities. For example, support groups were formed for Level 1 chemistry students, run by PhD student mentors, which were initially intended as a platform to meet and chat to peers and exchange information about university life in general. Each group had a private Teams channel and organised an online live meeting every two weeks; attendance was entirely optional. In practice, however, the nature of these sessions became more about the constructive activity for the approximately 20% of students who engaged and became focussed almost exclusively on course-related questions, which made the support groups effectively tutorial groups. The mentors also organised online pub quizzes, with similarly low turn-out, highlighting the need for this particular cohort for a clear purpose and construct to work on as the students who normally attended support group meetings were rarely seen in pub quizzes. This suggests that these support sessions became focused on academic, rather than social or pastoral, support and possibly highlights that connecting with students at, or close to, the same level may lead to more social support. It also highlights the value of having constructive activity to engage students in 'learning to learn' in a supportive environment.

In some areas, a student-led social committee was formed to facilitate the fostering of connections among students in a class. Study support groups were formed across years by our student societies (e.g. jointly by the Physics and the Astronomy student societies), with students at honours levels helping students from Years 1 and 2 with study skills and understanding material covered. A new peer-mentoring scheme was also developed and successfully implemented for all new students in the School of Physics and Astronomy. Over 100 students joined the scheme, which was mentioned as a welcome initiative to support the sense of belonging and ease the transition to studying in Glasgow. More than ever, it was clear, however, that students relied on social media platforms (e.g. Discord, WhatsApp, or Facebook) to communicate with and support each other in a virtual space not inhabited by academic staff.

Social activity has played a central role in connecting and engaging our students to our courses and Schools. Small-group teaching and groupwork have provided the context for students to connect pre-Covid and, through student feedback, the move to remote delivery has highlighted the importance of that time in class before teaching starts, where students catch up and chat. The walk to class with peers has now become a walk to the kitchen table, rather than through the cloisters, and this was highlighted by students as a significant loss. For this reason, the Zoom classroom should be set up with consideration given not only to teaching delivery but also to social connection. Enabling students to arrive before staff, rather than staff fully controlling their entrance, was implemented as a substitute for this experience. Creating groups of students has been contentious, with some students welcoming the opportunity to engage with peers in small-group breakout rooms, whilst others have been reluctant or unable to switch on their cameras and engage in this way. Acknowledging the diversity of social needs and comforts within a cohort can help overcome these challenges by creating groups clearly labelled as 'camera on' or 'camera off', so expectations are clearly managed.

Schools have made significant efforts to provide social networks, including both staff and students, with Netflix watch parties, quizzes, Strava-based running clubs, Spotify and YouTube playlists, and so much more. The student societies played a significant role, with online conferences, coffee and cake afternoons, and online pub crawls. Interestingly, the feedback from students throughout the year has been very positive about these extra-curricular activities, even when attendance decreased. Different things worked for different students and sometimes it was sufficient for them to know they could join if they wanted to. However, it must be acknowledged that our student body is diverse in many ways, so one size will not fit all here. At the University of Glasgow, international students make up 15% of our student population, bringing cultural diversity and opportunities for variety in networks and events. The University of Glasgow Neurodiversity Network (https://linktr.ee/Neurodiv) is a network of neurodivergent students and staff, promoting acceptance, representation, and research; it is an example of a collective that is open and enables connection among and between staff and students. Within our Schools, the communication between staff and students seems to be the most important aspect of feeling connected, with weekly messages providing information relevant to the courses but also more light-hearted aspects, such as of sharing music or photos, which provides an insight into the person behind the message. Wider networks, such as the Neurodiversity Network, provide opportunities to connect with others at the University level.

Connecting not only to the School but the University was a significant challenge. How do we keep the Glasgow-ness when we are remote? Social media played a significant role in this, with the University social-media team being at the forefront of delivery of information and that unique University of Glasgow experience. Social media also enabled Schools to connect with their students and the University as a whole. For example, the School of Psychology has a significant presence on Twitter and Instagram, which enabled us to share events, both academic and social, across the levels within our programmes, but also with Schools across the University. A supportive environment has therefore been created within courses, programmes, Schools, Colleges, and the University through communication of a variety of activities, discussions, and events, which allowed people to connect, be they staff or student.

3 Post-pivot reflections

3.1 Evaluation

Our flexible learning approach involved coordinated sharing of practical solutions, without dictating a one-size-fits-all approach. Wherever possible, we encouraged a subsidiarity principle, so disciplines (and individuals) were free to adopt their own preferred approach.

The implementation of our strategy was evaluated in several ways. Schools ran short, informal surveys on a regular basis for students, which were tailored to the work at hand at that time. This enabled rapid response to issues as well as ensuring best practice was maintained. Most of the student feedback reassured us that the measures we put in place were effective. The formal course feedback process included questions about online and remote learning; again, students generally indicated they appreciated the work we had done.

We closely monitored student engagement via access logs, progress trackers, and continuous assessment. If there were any changes in grade distribution, then marks were slightly better relative to previous years. In part, this was due to the institutional no-detriment policy introduced as a pandemic response.

The largest challenge many of our students identified was time management (Neuwirth, Jović & Mukherji, 2020). They had minimal structure to their working week and negligible peer interaction. There are some benefits to the flexibility afforded by remote and asynchronous delivery, for instance for students with caring responsibilities or jobs. However, students are expected to organise their own working time. In the College, we formulated a standardised e-mail to send out to students we identified as falling behind.

In common with other students, our learners have been much more engaged in discussion and asking questions in the virtual classroom using text chat facilities, which appear to have given students increased agency, so they feel able to conduct in-class discussions, either with the teacher or with peers (Teng & Wu, 2021). This has been a welcome effect of moving online and should be considered when thinking about how students want to communicate with us. Chat, more than webcam video, seemed an acceptable way for the students to be present in the virtual space.

One might speculate whether new skills that students are learning will have added value in terms of employability. Can students now adapt to being online and offline at different times and for different tasks? Have we been training the next generation for attending conferences and sharing scientific endeavour remotely, which may have positive impacts for public health but also for the environment?

Similarly, we must identify and retain any benefits of remote practical labs. The innovative techniques and technologies for online labs and simulations could be retained, for instance, to reduce pressure on over-subscribed practical equipment or spaces. We could also recycle pre-recorded materials for future years.

On the other hand, we must ensure that we are providing the gold-standard within our subjects with consideration of the circumstances within which we find ourselves. We expect to work with discipline-specific accreditation bodies to refine our approaches, based on the experience of the past year. In particular, we advocate a more flexible approach to skills-based accreditation, given the restrictions and improvisations our students have encountered (Blankenberger & Williams, 2020).

3.2 Theoretical Basis

The COVID-19 emergency precipitated sudden and dramatic organizational change. As we responded to rapidly moving circumstances in an agile fashion, we did not have sufficient time to mine academic literature and consider the merits of various approaches. Now, when we look back on our teamwork in supporting colleagues to pivot their teaching practice, we recognise that we unconsciously followed the crisis leadership model of Fernandez and Shaw (2020), characterised by servant leadership, distributed leadership and clear communication.

Servant leadership embodies authenticity and empathy. In a moment of crisis, humility and consideration enable leaders to preserve institutional morale and ensure engagement from colleagues. We tried to follow this approach to establish trust and confidence in our strategy. Distributed leadership leverages shared knowledge and responsibility. It promotes resilience and diversity, both of which are essential when facing a crisis. Clear communication ensures transparency, so the campus community has a shared strategic vision.

This leadership approach is not specific to the current circumstances; it should transfer effectively to any emergency operational context in higher education.

4 Conclusion

After a year like no other, we are eager to share key recommendations from our experience, which will hopefully support others in their ongoing practice, acknowledging we may never fully return to the pre-pandemic mode of education. Bhagat and Kim (2020) offer the term 'digital resilience' as a positive outcome of the online pivot. In addition we would like to highlight two aspects that take us beyond just the use of technology and connect us as humans.

Communication is key. All of our Schools have seen the benefit of clear and consistent communication with students. This is partly about connection but also about managing expectations since no-one likes surprises or uncertainty, especially during difficult times. Regular messages from a key member of staff can help minimise uncertainty while keeping students informed. Communication between staff members is also very important. The immediate response of a reader active in Higher Education may be 'I don't have time to do all this!', and we can all identify with that. Sharing best practice with colleagues within Schools, across Colleges and institutions through groups such as ours can be an efficient way of keeping everyone moving in the same direction, without implementing a restrictive one-size-fits-all approach.

Community grows from communication. A sense of belonging is important, but never more so than when one is physically separated from the people and space that make up that group. Using technology to interact with each other, establishing connections between staff and students, builds a virtual community in an online space. Only time will tell whether the extraordinary experiences of the past year, along with the strategic mitigations, have succeeded in preserving and strengthening the academic collective.

Biographies

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