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A blended future? A crosssectional study demonstrating the impacts of the COVID19 pandemic on student experiences of wellbeing, teaching and learning

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A blended future? A cross-sectional study demonstrating the impacts of the COVID-19 pandemic on student experiences of well-being, teaching and learning

Abstract

Background

The COVID-19 pandemic necessitated emergency changes to teaching, learning and assessment across higher education. Healthcare courses were particularly affected because of their interdependence with overstretched health services.

We used this unprecedented situation to provide insight into how students react to unexpected crises and how institutions can most effectively support them.

Methods

This cohort study explored students' experiences of the pandemic across programmes and stages from five schools (medicine, dentistry, biomedical sciences, psychology and health professions) in a health faculty in a UK university. We carried out an inductive thematic analysis on the data collected.

Results

Many students reported fluctuating emotions and struggled to adapt to home working. Students' changes in motivation and coping strategies varied, many found structure, recreation and social interaction important. Opinions on how well online learning worked relative to face-to-face diverged across programmes.

Conclusions

A 'one size fits all' blended learning response is unlikely to be appropriate. Our study shows students across one faculty, within one institution, responded diversely to an emergency affecting them all. Educators need to be flexible and dynamic in

delivering curricula and supporting students responding to an unexpected crisis during their higher education.

Keywords

Blended learning; online learning; COVID-19; student well-being; student welfare; student experience

Background

The COVID-19 pandemic forced higher education institutions (HEIs) across the world to adapt to new ways of delivering education, but this has not been a case of simply moving to a pre-defined scheme of blended delivery. The proportions and modes of in-person and remote teaching have fluctuated unpredictably in response to stages of the pandemic and government guidelines, creating uncertainties for all involved. Education providers have had to acquire new skills for facilitating learning whilst devising multiple plans of delivery to meet varied contingencies and maintain standards of student experience and integrity of assessment. These plans have required ongoing adaptation in light of changing circumstances and lack of precedent for how well these new approaches work in this population ¹⁻³. The long term impact of the pandemic on HEIs is still emerging, but it seems likely that there will be significant implications in terms of programme delivery, fluctuating student numbers and financial strain ⁴.

The situation has been no less demanding for students who have similarly had to adapt to multiple, sudden and enforced changes. Familiar structures of timetabling, learning, communication and assessment have been disrupted, creating a potentially confusing environment in which to pursue their education. Many students have had to leave the university space and continue their learning elsewhere, managing the unpredictability of the pandemic on their lives in tandem with their education. Few, if

any, of these circumstances of upheaval were pre-planned; staff, students, HEIs and government have all been concurrently experiencing this venture into the unknown. The King's Fund has highlighted the need for leaders and staff to learn and work together through and after this crisis and highlight the breaking down of barriers in delivering a 'we're all in this together' approach ⁵.

Educators have already learned a great deal since the pandemic began, including ways to enhance online learning, particularly for those previously unfamiliar with it ⁶. However, this must be balanced with concerns that online learning could create discrepancies in accessibility for different groups of students. Listening to and reflecting on students' experiences can enable educators to learn from this crisis and better support students in their education during and after the pandemic ⁷.

With few, if any, precedents in the contemporary history of higher education to draw upon, attempts to guess at, or assume that we understand, students' feelings or needs may be inadequate. It may even add to the anxiety and uncertainty of what is already an unpredictable and unexpected situation. Implementing structures to support student welfare in such crisis situations, and delivering optimum teaching and learning, requires insight into lived experience and impact of the pandemic on students.

A large body of evidence exists (and has done since before the pandemic emerged) to explain how students respond to stress and uncertainty more broadly. Controlled uncertainty has been shown to enhance learning in some contexts, and students show individual differences in their abilities to manage such uncertainty ^{8,9}. However, the profound nature of the uncertainty caused by the pandemic, which has generally been outside of the control of students, staff and HEIs themselves, may impact students in a very different way. Increased stress levels have been shown to have a

negative impact on quality of life for university students¹⁰. When coupled with feelings of loneliness (reported widely across various groups and individuals during multiple lockdowns) and learning burnout, students report a more negative overall experience of university, and loneliness and exhaustion have been shown to increase perceived stress¹¹.

The impact of stress, burnout and well-being on student performance is an important and complex issue. It is not simply the case that increased stress and decreased well-being lead to poorer performance. In some cases it is the opposite. A study of American medical students found that although students' perceptions of their learning experiences are negatively impacted by stress, no relationship was found between student well-being and performance, and increased stress levels were associated with better academic performance¹². However, others have reported that higher levels of stress in students are associated with poorer academic performance¹³ but higher levels of student well-being upon starting university are associated with higher levels of attainment and engagement during their studies¹⁴. A study looking at the temporal relationship between student well-being and academic grades demonstrated that high grades precede high student engagement and low burnout, but high burnout does not precede low grades attained in future, suggesting that grades received is an important predictor of student well-being, but not *vice versa*¹⁵. Clearly these are all important issues to consider as we emerge from the pandemic, as there will have been significant variation in student experiences of this period, and the potential impact on attainment cannot be ignored.

Much has now been learned about how universities can best provide a blended learning environment, both during a crisis such as COVID-19 and in more 'normal' times. Initially (in the UK from March 2020), HEIs in many countries were forced to

go entirely online. Since then, different parts of the world have re-emerged, locked down multiple times, emerged again and so on, with many HEIs around the world now looking to create a planned blended future, keeping some aspects of both online and face-to-face learning. Clearly this represents one of the most significant changes to HE in generations, and so care must be taken to respond in a carefully considered and evidence-based manner. There is evidence that some aspects of online learning are well received by students around the world, including in Saudi Arabia ¹⁶, China ¹⁷ and Italy ¹⁸. Access to technology, and the ability to use it, are key to the success of remote learning, and this is reinforced when considering work from Pakistan for example, where the majority of students do not have internet access ¹⁹. In the UK, most students will likely have access to the internet, but we should absolutely not assume they can all afford the devices required to connect, have the technological literacy to succeed, or the time and space to study in privacy or without distraction and interruption. The physical classroom is to some extent a leveller for students who have a difficult home life, caring responsibilities or lack of access to technology. A narrative that has become more prevalent in the UK press since the pandemic forced online learning, is the concept of 'value for money' of university courses. Even before COVID-19, the idea of 'students as consumers' was gaining traction, as UK tuition fees sharply increased ²⁰. Whilst students do not always see themselves as straightforward consumers, there is now a more transactional relationship being demonstrated between student and HEI, with increasing emphasis on student satisfaction²¹. This is an important consideration as we consider moving towards more online learning in future. The impact of online learning during the pandemic seems to have changed student perspectives on 'value', with the Higher Education Policy Institute reporting in 2021 that only 27% of students surveyed said they had

received good or very good value for money on their course, a significant decrease from 41% in 2019 ²². Whilst value for money should not be the only driver in the design of our education provision, this is an important consideration and student satisfaction in many areas has already reduced in 2021 according to the Office for Students National Student Survey data ²³.

Within this context and wanting to learn more about how we could best respond in future to students experiencing an unexpected crisis (global or individual), we explored student experiences during the COVID-19 pandemic with two main aims:

1. To explore what particular challenges our students have faced, with a view to recognising ways they may be supported.
2. To identify any lessons that can be learned for provision of education during a pandemic (or similar crisis) and beyond, highlighting any areas of blended learning it may be beneficial to continue or develop.

We gathered and analysed data rapidly, to allow student responses to inform our ongoing activity as the pandemic continued to progress. We used our outcomes to highlight key themes applicable across our faculty and within individual schools in the support of students and our development of a new blended approach to their university education. The broad demographic of our students, coupled with the fact we have not confined the sample to a single academic specialty, gives our findings relevance across higher education.

Methods

Participants and recruitment

Participants were undergraduate students from five Schools of the Faculty of Health: Biomedical Science; Dentistry; Health Professions; Medicine; Psychology. The

voluntary online survey was distributed to all students on the participating programmes by sending an invitation and hyperlink to their university email account. The link directed respondents to the questionnaire presented in Microsoft Forms, allowing students to complete at a time and place of their choosing and facilitating collection of responses online. We offered the survey to this heterogeneous group of students with diverse entry and course requirements to enable comparisons between students on different programmes, with different demographics and at different stages of study. This approach meant we could reach hundreds of students, many of whom had by necessity moved away from university, due to lockdowns, by the time we carried out the survey ²⁴.

Survey design

Survey questions were designed in consultation with colleagues from participating schools within the Faculty of Health. We asked students what School they were from, but other than that a fully exploratory approach was taken. Open questions were used and we intentionally avoided any 'leading' questions. All questions were optional to allow students to express as many, or as few, of their thoughts and feelings as they were happy to, rather than restricting them to selecting from a list of options based on our own assumptions. We were acutely aware that it had been, and continued to be, a difficult and distressing time for many students, so we took this flexible approach with all questions being optional. This allowed our findings to be wholly shaped by the student responses, but within our restrictions of access to participants, resources, the need for timely intervention and a sensitivity to the burden of the transition for students. This exploratory method with voluntary participation provided us with the most sensitive way of handling the situation while gathering contemporaneous and real time reflection on emotions and reactions, and

still providing sufficient depth and richness of response to enable an inductive approach to be effective and transferable²⁵⁻²⁷. The full questionnaire is reproduced in Table 1.

Data collection

The survey opened in June 2020, six weeks after the UK government had imposed the first national lockdown in response to the COVID-19 pandemic, and during which intervening period all teaching had moved online, with clinical and practical placements suspended. The survey remained open for four weeks, covering the last two weeks of the summer term and the start of the summer vacation. As this work formed part of our internal quality assurance and student voice activity, specific ethical approval was not required. There was no penalty for not responding and no student was approached individually to participate.

Data analysis

Responses were downloaded to Microsoft Excel for initial analysis then imported to R²⁸ for secondary analysis and visualisation. The full dataset is available on reasonable request from the authors. Findings were generated using a fully inductive approach, grounded in the responses of the students^{29,30}. Thematic analysis was undertaken by all authors following Braun and Clarke³¹. Themes emerged from an iterative process of carefully reading the responses and modifying codes accordingly until theoretical saturation of the data was reached³². All codes were agreed by the authors through discussion. This approach captured the richness of the data and consideration of the full breadth of participants' perspectives. Data was analysed by school and as a whole cohort. Some school-level data is shown in this paper, to illustrate certain differences in student experience reflecting differences across various programmes.

Once the final themes had been confirmed, we conducted a secondary frequency and correlation analysis of the themes and participant responses. Individual responses were used in the frequency analysis to ensure that each response was used only once within each theme to avoid creating a false size effect bias.

Results

270 responses were received from a possible 3245 students across the five schools. Of these responses, the ratios of which schools they were received from is shown in Table 2, along with the size of school in relation to the overall Faculty.

Emotional experience of students

We first considered how students had felt up to that point in the COVID-19 pandemic and if these feelings had changed over time. The responses were varied and seven themes emerged (Table 3; Fig. 1).

The most common emotion described was 'up and down' (67/270 participants) and it is important to note that students described moving in both directions as they either adapted to the effects of lockdown or found themselves increasingly struggling.

Several reported a 'rollercoaster' of emotional states. The second major theme was anxiety (55/270) which encompassed those who described feeling scared, stressed or worried. Responses were spread evenly over the remaining five themes of demotivation, frustration, loneliness, neutrality and positivity.

Specific challenges faced by students

To further explore the issues underlying the emotional experiences reported, we looked at students' descriptions of specific challenges they had faced during the pandemic. Responses were grouped into six themes (Table 4; Fig. 2).

At the Faculty level the theme of motivation was the biggest issue for most students (60/270), expressed as demotivation, feelings of isolation and confinement. The next most common theme was the home environment (52/270), with students reporting the challenge of studying whilst balancing demands such as family and home schooling or other distractions not present when studying away from home. Other themes that emerged were 'coping with change' in terms of managing the abrupt transition to the communication and arrangement of teaching (41/270); 'health concerns' including suffering illness or bereavement and the impact of shielding either for oneself or for loved ones (37/270); 'technology' (17/270); and 'financial' (12/270). A small number of respondents specifically stated that they had not faced any challenges and others gave no response. Non-respondents were grouped independently with no assumptions made as to the reason for non-response. We explored how the challenges faced by students may have influenced their emotional response. A correlative plot of these two factors (Fig. 3) from the secondary analysis showed that the major emotional theme 'up and down' was most closely associated with the two main challenges of 'motivation' and 'home environment'.

Students described feeling down at first as they struggled to adjust to working at home but that having established a new working pattern they later felt more positive. Conversely, others reported initial enthusiasm waning and becoming more negative in their outlook with a parallel loss of motivation.

Coping strategies

Understanding the strategies used by students to adapt to and cope with the challenges they faced can inform the provision of support mechanisms by universities. The main theme that arose was structure (90/270) which referred to

embracing routine, maintaining a busy, regular timetable and a positive outlook (Table 5; Fig. 4). Recreation, including exercise and hobbies, was the next major theme (67/270). Other themes identified were social ties (45/270) such as family, friends and other social groups; and belief systems (13/270).

As demonstrated above (Fig. 3), targeted correlative analysis of participant responses enables a deeper interrogation of the possible reasons behind them than a frequency analysis of individual themes. A question that arose from the initial exploration of themes was whether 'no response' to coping strategies may correlate with loss of motivation. The resulting plot (Fig. 5) revealed that only 3 out of the 60 students who cited motivation as the greatest challenge gave no response to coping strategies. A further 5 out of 60 specifically said that they had no coping strategy. Structure (22/60) and recreation (18/60) were the most common coping strategies used by students who reported they struggled with motivation. This result is pertinent because a structured environment and recreation facilities are both resources that HEIs are in a position to offer students.

Impact of COVID-19 on teaching and learning

The questions considered thus far, identifying the experience and emotional responses of students as individuals, benefitted from an indirect approach to capture the range of experience. In contrast, the consumer model increasingly explicit in higher education, leads to the more direct questions of what worked better and what worked less well in terms of teaching and support than 'normal' face-to-face teaching. The most frequent response to what had worked better was 'Nothing' (79/270) (Table 6; Fig. 6).

This somewhat blunt result should be set in the context of two important factors. One is that in the long form responses, 'nothing' was frequently accompanied by 'prefer

face-to-face teaching' suggesting that it was being used as much as an expression of frustration with the situation as a criticism of the quality of teaching on offer. The second is that the next most common responses were 'live online' (53/270) and 'recorded online' (47/270). These emerged naturally from the inductive thematic analysis as separate themes and suggest that more students felt that online teaching worked better than 'normal' face-to-face teaching than felt that 'nothing' worked better.

A direct comparison with the complementary question of what had worked less well is not straightforward because the responses did not fall into the same themes. This demonstrates a strength of the inductive approach in allowing themes to be defined entirely by student experience and not investigator expectation. Concomitantly, a weakness, due to the timeframe available, was not being able to explore identical themes in dichotomous scenarios. The most frequent theme of what worked less well was 'online learning' (87/270) the other themes then fell into specific areas (Table 7; Fig. 7), either of the curriculum: group learning (43/270), practical classes (28/270); or of course management: communication (26/270), technology (13/270). Taking a similar cumulative approach as above, the combined responses for the online learning, group learning and practical classes working less well than 'normal' face-to-face teaching was substantially greater than those who felt that 'nothing' worked less well. This highlights the challenge in delivering teaching and learning during the pandemic in a manner that meets student expectations.

The responses to these questions showed the greatest divergence across schools, likely reflecting the particular demands of each subject and discipline-specific approaches to teaching (Fig. 8). For example, 'groups' was identified as a key theme that worked less well in Medicine, Dentistry and Health Professions. Many of the

programmes in these schools are centred around small group learning. Whilst many small groups continued online, it is clear that the online group experiences during COVID-19 were not as beneficial as they were in person.

A correlative plot (Fig. 9) shows a strong association between those that felt nothing worked better than face-to-face, and that online teaching worked less well. Notably, several students who answered that either live or recorded content worked better also reported online teaching worked less well. This apparent contradiction may be due to the fact that the questions and themes do not discriminate between possibilities such as individuals liking pre-recorded, narrated lectures but not enjoying online group learning using video software for example.

What to retain in a blended curriculum

For those involved in delivering higher education within a blended framework, whether as a planned intervention or in response to an unexpected crisis, it is informative to know what students would like to see continued. There was a strong association between what worked better and what to continue (Table 8; Fig. 10). This has important implications for developing a blended curriculum, suggesting that students appreciate online learning in certain contexts but that this should complement and not supersede face-to-face means of delivery.

Lost facets of the student experience

Analysing what has worked more or less well addresses the content and support that students were able to access, but neglects those aspects of the normal, complete student experience that may have been lost. These missing components may be overt or relate to the hidden curriculum and features that only the learners themselves can identify. Six themes emerged from the question 'What have you missed out on?'. The most common was clinical skills (83/270) which encompassed

direct clinical teaching and placements (Table 9; Fig. 11). This was most pronounced in Dentistry, Medicine and Health Professions. These three schools run healthcare programmes with significant clinical components, as opposed to Biomedical sciences and Psychology where programmes take place largely only on campus. Clearly for our healthcare students, missing out on valuable clinical teaching and placements was a serious disadvantage. In other Faculties, a similar trend may be expected for cognate, specific professional experiences.

'University events' such as graduation and organised social events was the next most commonly identified theme (58/270). Students in Biomedical sciences, Health Professions and Psychology noted this theme more often than those in Medicine and Dentistry, perhaps reflecting the more isolated nature of these programmes taking place in clinical placement locations, with non-standard term dates and programme length, and their individual student societies. 'Tutor input' (52/270) 'Practicals' (14/270), 'Library' (13/270) and 'Social' (12/270) followed. 'Practicals' included skills taught in a classroom setting such as a laboratory although there was occasional ambiguity in responses over the specific setting to which they referred. 'Social' comprised external social activities and travel. This question was not explicitly written to focus on teaching but that emerged as the dominant theme, particularly where clinical and practical teaching were combined with tutor input. Within this broader context of teaching, there were clear differences between schools with the medical and dental school students missing out on clinical teaching whereas in the other three schools the loss of tutor input was felt more acutely (Fig. 12).

Discussion

Students experiencing fluctuating emotional experiences require flexible interactions with teachers

The guiding principles and two main strengths of this study were to allow themes to emerge bottom-up from student responses and to accurately capture student experiences with no prior assumptions about what these might be. This generated a richness and depth of data that would be constricted by a top-down, investigator-led approach. Consequently, some findings may appear surprising. In our discussions with teaching colleagues while preparing the survey, it was felt that the predominant feeling would be anxiety or loneliness. In fact, a fluctuation of emotions which we classified as 'up and down' was the most common and although anxiety was second, loneliness was on a par with frustration and neutrality (Fig. 1). Also surprising in this respect was the proportion of students (21/270) who said that they were feeling positive during the pandemic and enjoying the changes to their study routines or daily life. Pursuing these unexpected findings in more depth using semi-structured interviews for example would be interesting, but any such follow-up would need to take into account the fact that student circumstance and expectations have changed considerably in the interim, and we would now be relying on remembered emotion rather than ongoing contemporaneous experiences.

Our findings highlight the challenge in delivering teaching and learning during the pandemic in a manner that meets fluctuating student emotions. This requires teachers and HEIs to be flexible and dynamic in their interactions with students and to recognise that one size does not fit all. The extent to which this is feasible would doubtless be a case for earnest debate in any Faculty. We see two important implications to the changing emotional landscape in which students find themselves.

The first is that there is no room for complacency, students who appear to be coping and positive at any given time may not stay that way for reasons that are outside their control or even awareness. On the other hand this also gives cause for optimism. Many students who find themselves in a negative mind-set may move towards a more positive state given time and support. Our study has shown that many recognised their own lack of motivation and actively used explicit coping strategies to counter this. Teachers and HEIs might therefore consider what support they can put in place to help students with these approaches. Within the population surveyed here, structure (defined variously as a clear timetable, routine and busy positive outlook) and recreation were the prime coping strategies and are both aspects of the student experience that HEIs can facilitate either directly, or through support for the student to manage this themselves. This speaks to a fundamental principle of adult learning and giving them the tools to take charge of their own learning ³³.

The provision of structure links to another major challenge, reported by 41 of our 270 students: coping with change. Comments included 'managing workload', 'unfinished work' and 'communication of altered teaching arrangements'. With this in mind, it may be helpful to note the theme of 'staff contact' that emerged from the question of what had worked better and included weekly catch-ups, regular feedback and tutor contact. Teachers and HEIs have a key role to play in minimising the abruptness of change by having resources and plans in place to enable a smooth transition between learning environments. Clearly this was not easily done with the unexpected situation we found ourselves in from March 2020 onwards, but it is an important lesson to be learned from the pandemic as HEIs look to develop resilience should another pandemic arise in future. This is also an important consideration for

students who are individually undergoing some form of unexpected crisis that takes them away from their studies; and putting in place regular contact with faculty may be a straightforward solution to help support them. Just as importantly, it can inform strategies for ongoing blended delivery. A significant number of students reported greater efficiency of learning in the pandemic due to greater timetable flexibility, more individual time management possibilities and reduced travel. All of these aspects can be considered as ways for Faculties to improve learning opportunities even after a return to campus.

Different teaching tools and modalities need to be tailored to individual subjects

We identified broad themes of the student experience in the pandemic, such as loss of motivation, that were common across the entire Faculty and are likely to be applicable to a range of Faculties in HEIs. However, there were differences across the various Schools on what worked well or what students had missed out on. These findings highlight that a one size fits all approach is unlikely to succeed, at Faculty, subject or individual student level. HEIs need to consider, at all levels, which methods are going to both optimise delivery of course content and allow a diverse student population to learn to the best of their ability. This is likely to require building on historic strengths or favoured approaches of departments whilst incorporating novel methods, even if these are alien to teaching staff. Key to this, as with any curriculum development, is consulting regularly with students and teaching staff to gather their feedback and perspectives on any proposed changes.

Different qualitative methods (such as interviews or focus groups) to gain detailed data on student perceptions of this period may have been desirable in this study, however there were a number of reasons why this approach was chosen. The anonymity and distance provided by an online survey enabled students in

challenging personal circumstances to respond and be heard where coming in for an interview was impossible. The literature also suggests that online surveys may attract responses from a wider demographic than traditional approaches²⁴. We had to capture the student views quickly against an unpredictable and rapidly changing background of responses to, and effects of, the pandemic at local and national levels. The Faculty of Health comprises ~40% of the student population at the University of Plymouth so an online questionnaire enabled us to reach out to this large sample of students in a short time and access a wide range of respondents, generating data with a range, richness and heterogeneity of sources unavailable from other methods, given the time and resources available. Semi-structured interviews would have allowed greater exploration of themes but the time taken to obtain funding and organise the logistics of this would have meant losing out on the immediacy of response and capturing contemporaneous snapshots of individual experiences at this time point. Furthermore, students may have been personally affected by the pandemic and for a range of physical, logistical and emotional reasons been unable to attend or give an interview. Using a feedback method that all students were already familiar with, ensured the data collection did not add to the uncertainty or pressure on the students.

Pre- and post-COVID-19, students' needs differed between individuals and between subjects. The prevailing shift to increased online delivery is a complex issue, raising competing demands of efficiency, access and quality. The impact COVID-19 has had on higher education has acted as a global experiment in remote learning, and we should use findings, such as those presented here, to inform our development of blended learning in future, as well as how to better understand student responses to an unexpected crisis.

Key suggestions and recommendations for HEIs

The data from our students suggests a complex picture of their experiences of the pandemic. Should another situation arise in which education must be moved online or suspended, it is clear that we must appreciate individual differences between our students and their programmes. For healthcare programmes, we must mitigate for lost clinical teaching and placements. We should also consider how small group learning can be optimally effective in an online setting. Student support is vital, and emerged here under the theme of 'tutor input'. We suspect that during more challenging times, students require more one-to-one time with their tutors. This can be usefully applied to 'normal' times too, when students are struggling with other challenges. Student motivation emerged strongly from this work, and is another example of a challenge which endures in 'normal' times but can be addressed using this learning from the pandemic. In the absence of an external crisis, maintaining student motivation and engagement is important, and something we must focus on, again with input from our students.

Conclusions

We have described an internal quality assurance process that has been used to explore the immediate responses of students to the impact of the COVID-19 pandemic on their learning. This is a severe example of an unexpected crisis that may cause a student to have to suddenly leave their studies and access learning in a different way to usual. The results and discussion demonstrate that regardless of the area of study, students may react in a similar emotional way and experience a range of fluctuating emotions. The broad demographic of our students, coupled with the

fact we have not confined the sample to a single academic specialty, gives our findings relevance across higher education.

Regardless of area of study, staff contact and support during such times is seen as useful. Within varying areas of study there will be specific elements of learning that will be missed more than others and each student may prefer different types of teaching and learning provision than others. Having a blended experience may mean more students receive something they find helpful; and it should be noted that across all our respondents, face-to-face teaching and live contact with staff was recognised as valuable.

We moved online as a rapid response to a public health emergency. We must now emerge in a more considered, mindful manner, using evidence from our various experiences to develop better, more engaging and more accessible learning for diverse populations of students. Our findings serve as a qualitative foundation for consideration of what may be implemented in terms of student experience, teaching and learning.

List of abbreviations

HEI: Higher education institution.

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Tables

1. How have you felt during the COVID-19 pandemic so far?

2. What coping strategies have you used to attempt to deal with all the changes, and how effective do you think they've been?
3. Can you describe any specific challenges that you have faced during the pandemic?
4. In terms of the teaching and support we have provided to you, is there anything that has worked better for you than 'normal' face-to-face teaching?
5. In terms of the teaching and support we have provided to you, is there anything that has worked less well for you than in 'normal' face-to-face teaching?
6. Have you used any other kinds of support that the School, Faculty or University has offered, and if so, was it useful?
7. Is there anything you feel you've missed out on as a result of the pandemic?
8. Have you maintained social contact during the restricted period?
9. Has your level of social contact (be it lots, some or none) had any effect on your experience of this pandemic period?
10. Is there anything that your School or the University has done during this pandemic that you would like to see continued under normal circumstances?
11. Is there anything else relating to your experience of University during the pandemic that you'd like to tell us?

Table 1. Online questionnaire sent out to students to survey experiences during the COVID-19 pandemic.

	Faculty		Dentistry		Medicine		Biomedical Science		Health Professions		Psychology	
	Enrolled	Survey	Enrolled	Survey	Enrolled	Survey	Enrolled	Survey	Enrolled	Survey	Enrolled	Survey
Proportion of Faculty (%)	100	8	11	22	18	19	16	12	30	31	25	16
Female (%)	70	78	59	73	56	65	68	79	74	82	81	91
Male (%)	30	21	41	27	44	33	32	18	26	17	19	7
BAME (%)	25	22	57	37	40	22	30	19	19	16	6	14
White (%)	75	78	43	63	60	78	70	81	81	84	94	86

Table 2. Demographics of survey responses across the participating Schools, herein referred to as 'Faculty'. All figures are given as percentages. N.B. Not all pairs of female/male or BAME/white figures add up to 100% due to some respondents preferring not to answer.

Q. 1 How have you felt during the COVID-19 pandemic so far?	
Themes identified	Example responses
Demotivated	Sad, depressed, bored, loss of purpose
Anxious	Scared, worried, stressed
Positive	Calm, enjoying, happy, content
Neutral	OK, fine, unaffected, indifferent
Frustrated	Angry
Up and down	Rollercoaster, change in feeling from good to bad or vice versa
Lonely	Lost, isolated, overwhelmed

Table 3. Themes identified and example responses to survey question: 'How have you felt during the COVID-19 pandemic so far?'

Q. 3 Can you describe any specific challenges that you have faced during the pandemic?	
Themes identified	Example responses
Home environment	Home schooling, family, distractions
Health	Illness, bereavement, shielding (self or loved ones)
Change	Unfinished work, managing workload, communication, arrangement of teaching
Motivation	Isolation, confinement
Technology	Wifi, connection, software
None	Not really, can't think of any
Financial	Money struggles, worries about a job

Table 4. Themes identified and example responses to survey question: 'Can you describe any specific challenges that you have faced during the pandemic?'

Q. 2 What coping strategies have you used to attempt to deal with all the changes?	
Themes identified	Example responses
Recreation	Exercise, hobbies
Social ties	Family, friends, social groups
Structure	Routine, staying busy, timetable, positive outlook
Beliefs	Religion, meditation
None	Not needed, haven't tried

Table 5. Themes identified and example responses to survey question: 'What coping strategies have you used to attempt to deal with all the changes?'

Q. 4 Is there anything that has worked better for you than 'normal' face-to-face teaching?	
Themes identified	Example responses
Efficiency	Flexibility, time management, no travel
Live online	Online lectures, Zoom
Nothing	Prefer face to face
Recorded online	Recorded or narrated content
Staff contact	Weekly catch up, feedback, tutor contact

Table 6. Themes identified and example responses to survey question: 'Is there anything that has worked better for you than 'normal' face-to-face teaching?'

Q. 5 Is there anything that has worked less well for you than 'normal' face-to-face teaching?	
Themes identified	Example responses
Efficiency	Flexibility, time management, no travel
Live online	Online lectures, Zoom
Nothing	No, not really
Recorded online	Recorded or narrated content
Staff contact	Weekly catch up, feedback, tutor contact

Table 7. Themes identified and example responses to survey question: 'Is there anything that has worked less well for you than 'normal' face-to-face teaching?'

Q. 10 Is there anything that you would like to see continued under normal circumstances?	
Themes identified	Example responses
Access	Online resources, books, home working
Assessment	Changes in assessment formats, course content
Live online	Online lectures, small groups, tutorials
Nothing	Not really, not sure
Recorded online	Panopto, narrated Powerpoint
Support	Increased communication from staff/central uni, backup plan for re-occurrence, FAQs

Table 8. Themes identified and example responses to survey question: 'Is there anything that your School or the University has done during this pandemic that you would like to see continued under normal circumstances?'

Q. 7 Is there anything you feel you've missed out on as a result of the pandemic?	
Themes identified	Example responses
Clinical skills	Clinical experience, placement, practice
Library	Library, quiet workspace
Nothing	No, preferred studying online
Practicals	Practical elements and practice.
Social	External social activities, travel, social life
Tutor input	Teaching, SGL, guidance, advice
Uni events	Graduation, ball, summer social, saying goodbye, completing course

Table 9. Themes identified and example responses to survey question: 'Is there anything you feel you've missed out on as a result of the pandemic?'

Figure legends

Figure 1. Number of responses to identified themes for 'How have you felt during the COVID-19 pandemic so far?'

Figure 2. Number of responses to identified themes for 'Can you describe any specific challenges that you have faced during the pandemic?'

Figure 3. Association of responses to Q. 1 'How have you felt during the COVID-19 pandemic so far?' with Q. 3 'Can you describe any specific challenges that you have faced during the pandemic?'. n = number of individual respondents who reported a given combination.

Figure 4. Number of responses to identified themes for 'What coping strategies have you used to attempt to deal with all the changes?'

Figure 5. Association of responses to Q. 3 'Can you describe any specific challenges that you have faced during the pandemic?' with Q. 2 'What coping strategies have you used to attempt to deal with all the changes?'. n = number of individual respondents who reported a given combination.

Figure 6. Number of responses to identified themes for 'Is there anything that has worked better for you than 'normal' face-to-face teaching?'

Figure 7. Number of responses to identified themes for 'Is there anything that has worked less well for you than 'normal' face-to-face teaching?'

Figure 8. Distribution of responses to 'Is there anything that has worked less well for you than 'normal' face-to-face teaching?' across the five Schools.

Figure 9. Association of responses to Q. 4 'Is there anything that has worked better for you than 'normal' face-to-face teaching?' and Q. 5 'Is there anything that has worked less well for you than 'normal' face-to-face teaching?'. n = number of individual respondents who reported a given combination.

Figure 10. Association of responses to Q. 4 'Is there anything that has worked better for you than 'normal' face-to-face teaching?' and Q. 10 'Is there anything that you would like to see continued under normal circumstances?'. n = number of individual respondents who reported a given combination.

Figure 11. Number of responses to identified themes for 'Is there anything you feel you've missed out on as a result of the pandemic?'

Figure 12. Distribution of responses to 'Is there anything you feel you've missed out on as a result of the pandemic?' across the five Schools.