

The UK Open University COVID Response: A Sector Case Study

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Abstract

During the coronavirus pandemic, nearly all forms of education underwent an online pivot, to some form of internet-based instruction. The UK Open University (UKOU), like many other distance education and online universities, found its expertise in designing and delivering effective online teaching in demand. This paper reports how the UKOU responded to this demand through a range of mechanisms in three main areas: curriculum, research, and outreach. The different responses in these areas are categorised to highlight six main requirements from the sector: Support, Understanding, Knowledge Sharing, Replacement, Resources and Capacity Building. Using these as a model, the discussion argues that they represent responses that could be undertaken at global, national, and regional levels to develop a more resilient and robust higher education sector that would be better equipped to cope with future disruptions.

Keywords: open education, coronavirus, online education, educational technology



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Introduction

The coronavirus pandemic of 2020 saw a large-scale shift to online education, as physical locations were forced to close. In May 2020, UNESCO (2020) reported that over 85% of the world's student population, some 1.4 billion learners from 188 countries, were affected by the closure of educational institutions in response to the pandemic. The only alternative for many institutions was to deliver some form of education online, and this sudden switch became known as the pivot online, or online pivot (Weller, 2020). For most campus-based schools, colleges and universities where face-to-face teaching is still the dominant model, this represented a profound, and sudden, shift in practice. For distance education, however, or online institutions, while there was an impact on their students, staff, and operation, their fundamental pedagogy was largely operating as normal.

The pandemic brought into sharp focus several structural weaknesses in the higher education system. These included the close proximity of many people in one centralised location, the campus, which created a perfect culture for a virus to spread. The various components of a higher education system were usually all co-located on that main physical location, even with multiple campuses there is a tendency to focus on different subject areas but essentially replicate the core components. These components include the main delivery of teaching in the form of lectures, discussion in the form of seminars, assessment centred around in-person exams, resources housed in the library, practical work based in laboratories, and social interaction realised around cafes, bars, and other spaces. The complete closure of that location meant that it was difficult for many of these functions to continue. The over-reliance on the lecture as the primary model of delivery had the consequence that other options were not readily available. The use of high stakes examinations that required many individuals to be physically co-located at a specified time allowed no possibility for disruption, resulting in difficulty assessing students. In summary, the function of higher education was too closely allied with its physical instantiation. Once the physical location was compromised, the activities associated with them often had no reliable means of continuation.

It was through the extraordinary efforts of many involved in education, especially educational technologists, that those activities did find a way to continue via the online pivot, but this does not constitute a sustainable model. While this crisis came in the form of the COVID-19 virus, there are other forms it could have taken – climate change, increasing political unrest, further pandemics, and so on. COVID-19 made it apparent that the model of higher education largely adopted across the globe is not sufficiently robust to deal with many of the challenges it may now face.

In order to consider what the requirements of a more robust education system may be, this article will describe the various requests and actions taken by the UK Open University (UKOU) to support the sector during the online pivot. The UKOU offers fully distance, part-time education, which is largely online although blended with other media components such as print units and home kits. As such many of its employees found themselves in demand to offer advice and support to other institutions who found themselves in the position of suddenly being required to offer a form of distance education. Moving beyond personal contacts and support, the UKOU undertook a number of actions to help support the sector during this period and to research what impact the pandemic was having on students. These actions then provide a basis

for considering what expertise the sector itself deemed necessary to develop during the pandemic. As such they can be seen as indicators for the requirements for a more systemic reconstruction that goes beyond the frame of one institution. This paper draws together these various strands of activity and examines how these can inform us about future developments in creating a robust education system by way of a metaphor to frame the discussion.

The UKOU responses to the online pivot can be broadly classified under three main areas: curriculum, research, and outreach. There is some overlap between these; for example, the development of research informed curriculum, and outreach resources could be derived from, or linked to formal qualifications. These initiatives targeted internal, external, national, and international audiences, and included both explicit initiatives, such as the Coronavirus Research Fund detailed below, and ones which emerged over the course of the pandemic, such as responses to support student. However, they form a useful framing for considering the extent of activity across the University.

Curriculum

The UKOU is the UK's largest university, with over 168,000 students. The distance education, largely asynchronous, teaching model meant that this was less disrupted than the face-to-face, synchronous model of in-person lectures. However, there were practical impacts, for example, with regards to courses which still used face-to-face exams, and more broadly in accommodating the disruptive impact on staff and students, be it social, economic, emotional, or health-related, in a sympathetic manner. The UKOU took the decision not to require final assessments on most modules, instead relying on continual assessment for final grades in 2020. This was not a universally popular approach, but it supported students whose study had been most impacted by the pandemic, whether due to increased workload, stress, or illness. This significant change in assessment policy caused many programmes of study, such as Sport to take a proactive approach and host a live forum dealing with all student queries that arose over weekend periods when there was not any other support available for our students, thus prioritising just-in-time responses. The removal of the final assessment saw some decrease in participation, which academics took measures to address, for instance in Law they recorded a conversation with academics about an area of law that fell after the last assignment and held additional online support sessions for students, in order to give a sense of closure to the module.

While the impact of the pandemic for UKOU students may have been less than campus-based ones, it was still significant. Aristeidou and Cross (2021) found a 36% overall negative impact on the frequency with which UKOU students were undertaking study activities. This arose mainly from difficulties in managing workload, which may have been impacted by increased family duties, health, or external work (many UKOU students study part-time and in employment) and limited interaction with other students caused by the pandemic.

Beyond implementing formal measures such as the removal of final assessment for students, courses and curriculum areas undertook a range of extraordinary actions to provide support UKOU students as deemed appropriate. For example, the Open Degree held weekly informal drop-in chat sessions, which were loosely framed around a subject not related to study, such as films, music, food, etc. The aim of these sessions was to provide a sense of connection and social interaction for students who may have found themselves suddenly isolated. The academics in Mathematics jointly organised a series of online seminars for the Mathematics and

Statistics sector, sharing their experiences of teaching mathematics remotely to help support others in the move to remote teaching. An educational technology Professor held informal online weekly drop-in sessions focused on specific areas such as assessment, course design and engagement to help educators in the sector manage the shift online.

The cancellation of residential field trips meant that Earth and Environmental moved to provide virtual field trips, access to online datasets, and guidance on re-designing projects based on secondary data and Google Earth. The Virtual Microscope team produced over 200 new digital microscope samples for three UK universities (Portsmouth, Plymouth, and Leicester) who needed online teaching materials for their geology students. The open access virtual microscope website saw a five-fold increase in users globally from early 2020 onwards, as numerous institutions adopted the materials for their geology and mineralogy classes.

As well as support for students on existing UKOU courses, new courses were developed which were aimed at helping educators develop skills in online education. The UKOU is a co-owner of the FutureLearn platform and in 2019 had begun exploring this as a vehicle for delivering microcredentials, that is short credit-bearing courses with a vocational intent and a reduced form of tutor support than traditional UKOU core offerings. When the scale of the online pivot became apparent in April 2020, a small team developed a 15-point post-graduate course, entitled *Online teaching: Creating courses for adult learners*. The 12-week course was aimed at educators needing to learn more about designing online courses and was focused specifically to meet the needs of educators now required to engage in the online pivot. It was developed in five weeks by educators in the Institute of Educational Technology (IET), drawing on their research expertise in online education, and launched in August 2020. The course is presented three times annually and has proven to be the most popular of the UKOU's microcredentials, with 120-220 learners per cohort. It has been used as the basis for staff development projects such as the Skills for Prosperity Kenya project detailed below, and Cardiff University who put through a separate cohort of 200 staff. This microcredential was followed by the production of a further five microcredentials delivered on the FutureLearn platform. These addressed topics such as evaluating online teaching, embedding mental health in course design, embedding equity in online learning, and designing for diversity and accessibility.

Research

In this article, the focus is on the impact on online teaching, learning, and support, and not research in other related areas of the pandemic, such as epidemiology research. A sample of some of these and other research related projects is provided in this section, this is intended to be representative, but not exhaustive. Projects addressing research, UK teacher development, capacity building in Zimbabwe and Kenya will be highlighted to demonstrate the range of work.

In addition to existing knowledge and research being used to support the sector, new research was launched specifically to address the impact of the pandemic. The Coronavirus Research Fund of £385,000 was set up in September 2020 by the Pro-Vice-Chancellor, Research, Enterprise, and Scholarship, providing a rapid-response stream for projects with short turn-around and a longer-term stream for large projects, with the fund being completed by September 2021. The fund supported genesis research as well as support arising from research activities and was aimed at both internal and external beneficiaries. Funding was divided into eight categories:

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- Health and wellbeing - provided academic expertise and support on how to stay well during the COVID-19 pandemic.
 - Home schooling - focused on the blend of education needed for parents as they educated their children at home and teachers as they moved their resources online.
 - International online learning - provided open and distance learning support to the international education sector.
 - Online and distance learning - provided access to OU platforms, materials, and academics so that individuals could learn and teach online and HE colleagues and institutions could continue to deliver their learning remotely.
 - Public understanding - focused on the need for effective communications with the public during the COVID-19 pandemic.
 - Skills, SME, and industry support - provided support to furloughed workers who would benefit from learning new skills during this time.
 - Technical support - this drew on Artificial Intelligence, Blockchain, and digital platforms to generate externally funded research to develop tools to support the response to the COVID-19 pandemic.
 - Vulnerable and community support - worked with various community groups to enhance their reading and improve their literacy skills.

An example of research undertaken as a result of this fund was investigation into the impact on PhD students across the UK. This revealed that the majority of the study population (86%) reported a negative effect on their research progress during the pandemic. Furthermore, three in four PhD students experienced significant depression, with live-in children and lack of funding being the most significant contributory factors (Aristeidou and Cross forthcoming).

An example of a project working with educators in the UK sector was the Cardiff Commitment CPD programme was a collaboration between Cardiff Council, Cardiff and Vale College, and UKOU. It aimed to upskill school and college staff in online teaching. This also helped support preparation for the new curriculum in Wales and interest in blended learning pedagogy. Participants were encouraged to implement key components of pedagogy through a pilot project, such as reflection and co-construction, as well as to reflect the peer-to-peer aspect of the new curriculum. It also encouraged sharing of practice and expertise across education levels and institutions.

The project worked with a cohort of 32 teachers from across 23 institutions. The project was divided into two phases. Phase one was organised by the UKOU's Learning Design team, as a series of online workshops exploring pedagogy including activity design and assessment with the objectives of building knowledge and community through the series of workshops. Phase 2 was designed as six specialist, stand-alone sessions addressing topics such as the use of OERs, assessment design, and building online communities. These were largely delivered by subject experts in IET at the UKOU with input into the topics shaped by participants during Phase 1.

The pandemic was of course a global event, so UKOU expertise was sought outside of the UK also. An example of an international project was the work of Dawadi, Goshtasbpour, and Kukulska-Hulme (2022), who investigated the impact of the pandemic and online pivot in Kenya and Nepal. Through interviews with undergraduate students and teachers they identify factors which impact more severely on low and middle income countries, including lack of internet access and appropriate devices, increased exposure to financial risk, power cuts, and lack of digital skills.

The pandemic led to a substantial shift in teaching across the African continent and a requirement to better understand and gain experience of online learning. Building on existing projects in Zimbabwe (Power et al., 2021), the UKOU Coronavirus Fund provided funding to help researchers engage key policymakers, influencers, and development partners in Zimbabwe. This enabled the voluntary sector partners to upscale a community learning approach, reaching over 15,000 girls, and a similar number of boys. Independent external evaluations found significant impacts from this. Secondly, this then enabled the OU team to secure subsequent funding for two Technical Advisory projects to co-develop an implementation framework for the national Catch-Up and Blended Learning Strategy for the Zimbabwe Education System. As a result of the first project, the UK Foreign, Commonwealth and Development Office pledged \$1M of additional funding to UNICEF to print and distribute the learning materials developed through the research to reach all of the school children nationwide, and to provide training for every school head and teacher in how to use these to support learning in the school, home, and community.

Another international project, Pathways for Learning, was aimed at academic staff from across the African continent. It consisted of two free professional development programmes for university lecturers, instructional designers, technical and professional staff, managers, and heads of department who share responsibility for providing quality distance and online learning. The programmes combined study of an existing open course with supplementary activities including a total of 12 webinars and interactive events alongside use of new platforms created by IET such as nQuire which facilitates citizen science, and Our Journey, a set of tools to support students to chart the highs and lows of their study journeys and the important events that happened along the way. Evaluation of the project has revealed that this change is likely to persist post-pandemic, although infrastructure and cultural barriers are reported.

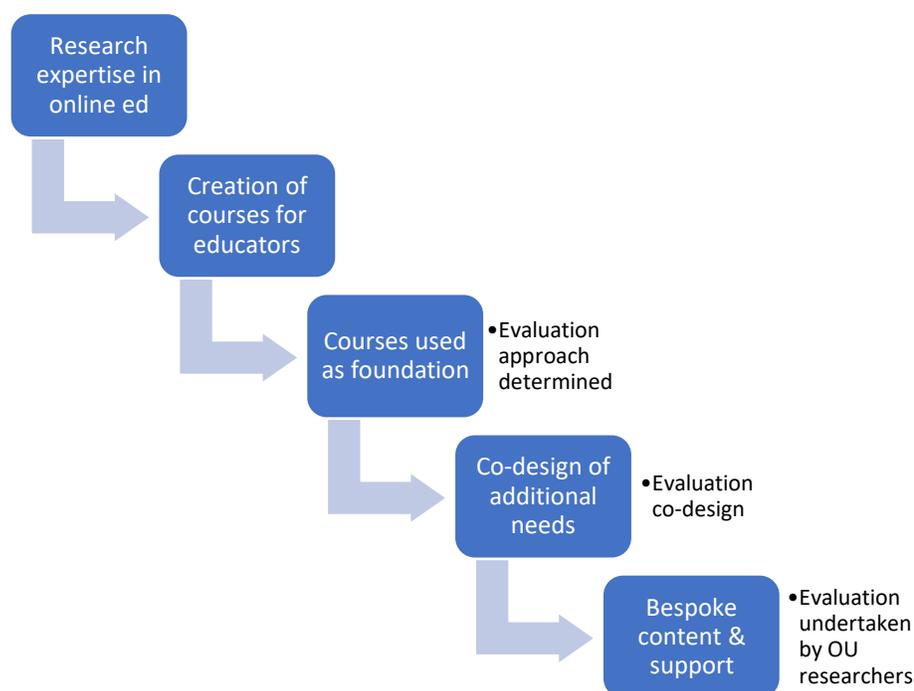
A similar approach was taken with another international project, Skills for Prosperity Kenya. Funded through UKAid, this project sought to develop capacity in online and distance learning across Kenyan higher education institutions. It operated two programmes, the first raising capacity and understanding of online education across 29 Kenyan higher education institutions. The second programme was aimed at decision makers and utilised the microcredential course mentioned above by putting a dedicated Kenyan cohort of 32 leaders through this, accompanied by two dedicated study advisers and three additional webinar sessions. This was then followed by co-designed capacity building projects, involving 81 staff across 8 universities. These capacity building projects included outputs such as dedicated courses on teaching STEM online, as well as areas of development such as learning analytics and online assessment.

The pandemic response highlighted the combination of curriculum and research. A model emerged organically from the combination of the work on curriculum and the research initiatives. Research in online pedagogy informed the creation of online courses, which were then used as

the foundation for staff development and capacity building in other institutions. These courses were accompanied by bespoke support and webinars co-designed with participants which drew on the expertise in specific topics within the University. The impact of the projects were evaluated by education researchers in IET. This process is summarised in Figure 1:

Figure 1

A Model for Sharing Expertise via Curriculum



Existing research projects also had to adapt during the pandemic. For example, the Global OER Graduate Network (GO-GN) is a project coordinating a global network of doctoral researchers in open education at other institutions. Its primary activity is based around a two-day face-to-face seminar, bringing a group of members together prior to a conference. With travel and face-to-face meetings curtailed, the GO-GN team developed a range of activities to continue to support members. These included increased webinars focused on sharing research by members, paid attendance for online conferences, provision of their own web domain and informal drop-in sessions. In order to maintain the global presence and reputation of the network, the team also coordinated the production of two research reports, one on open education research methodologies and another on conceptual frameworks. These reports gathered the different methods and frameworks used by members and combined with advice on the role of these within a thesis. They have proven popular beyond the immediate network with over 10,000 downloads and have replaced some of the reputational work previously realised through a large presence at global conferences.

Outreach

In 2006 the UKOU launched its OpenLearn platform, which provides free Open Educational Resources (OER) to all. It has over 10,000 free educational activities, resources, videos, and

articles that cover diverse subjects from maths and English to Greek history, modern politics, and psychology. There are also over 1000 short courses ranging from 1–100 hours of study, which are free of cost and have no entry requirements. The content is openly licensed under a Creative Commons licence, so it can be reused and adapted. The content is derived from UKOU courses, research outputs, and bespoke commissioned material.

During the pandemic, the OpenLearn site witnessed a considerable increase in traffic and usage. At the start of the first lockdown in March 2020, daily visitors to the OpenLearn site increased during the first few months of the pandemic from 40,000 to over 200,000 (OpenLearn 2021). In 2020, 51% of learners said that the COVID-19 pandemic influenced their decision to study on OpenLearn, with reasons including having extra time, supporting mental health, career enhancement during furlough and due to changes in finance. As well as supporting a general increase in visits, the OpenLearn team undertook a number of specific actions during the pandemic. OpenLearn offered training to approximately 190,000 furloughed workers, through collaborations with Department for Education (The Skills Toolkit), Skills Development Scotland, Working Wales, and Northern Ireland Direct. Additionally, volunteers from OpenLearn and the UKOU delivered training to frontline Jobcentre Plus (JCP) Work Coaches and helped more than 12,500 JCP clients enhance their digital and employability skills, in partnership with the Department for Work and Pensions.

OpenLearn drew on the OU's distance learning expertise and research to help teachers undertake the online pivot. This included a free course, *Take your teaching online*, which 3,700 learners completed during lockdown. The team curated all of their educational resources into a 'How to Teach online' hub, which attracted over 17,000 visitors, and also created home learning resources for school and college students to supplement their school studies. In addition, the team collaborated with retired and active health and social care practitioners to produce healthcare training hubs of practitioner-led guidance for returning health and social care workers, in order to help meet the need for more healthcare professionals. These resources were shared by more than 25 NHS trusts and boards.

Another form of outreach was realised through the *Innovating Pedagogy* reports. The reports are collaboratively authored by researchers in IET together with different external partners every year. The reports explore new forms of teaching, learning, and assessment for an interactive world, aimed as guides for teachers, policy makers, and others in education. The first report was published in 2012. In 2020, extracts from these reports were synthesised into short, one-page "Methods that work" summaries for 10 pedagogical approaches that might be adopted by educators globally during lockdown (http://www.open.ac.uk/blogs/innovating/?page_id=718). These reports were downloaded over 19,000 times by September 2020.

Discussion

The different activities set out above can be classified according to the intended purpose. The author identified six primary purposes, with some activities satisfying more than one:

- Support – offering support to students, researchers, teachers, and learners during the pandemic, for example, the weekly informal drop-in chat sessions on the Open degree.
- Understanding – undertaking research and analysis to understand the impact of the pandemic on education, for example, the research into the impact in Kenya and Nepal.

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- Proactive Knowledge Sharing – through formal courses such as microcredentials or more informal means, the UKOU undertook a considerable knowledge sharing role during the pandemic, based on its expertise in online and distance education.
 - Replacement – some activities were undertaken as direct replacements for ones that could no longer occur during the online pivot, such as the use of virtual field trips.
 - Resources – allied with knowledge sharing is the development of resources aimed at supporting educators and learners, as evidenced by the increase in traffic to the OpenLearn site.
 - Capacity Building – a more targeted form of knowledge sharing, working with specific audiences and tailoring bespoke content to meet their needs.

While not an exhaustive list, these six forms of activity represent the needs of the sector in moving towards a more robust model. In the next section, a metaphor for considering this model will be proposed.

These activities from the UKOU aim to meet the needs of a wide range of possible interested parties from individual students and educators accessing OpenLearn content to working with institutions, to helping realise national, government initiatives in the UK and beyond. As such, they provide a representative sample of the type of activity deemed necessary by the sector, which can be drawn on to consider the needs of a higher education system to become more robust.

In order to design a more robust system, there are a range of metaphors and models to choose from. One such model is from a system that was designed from the outset to be robust, namely the Internet. Paul Baran, the architect of the original design proposed a communications system to the military, which had robustness in the case of nuclear attack as its central characteristic. Naughton (1999) states that he used three design principles for this: “one, avoid centralisation like the plague – because any centralised system can be disabled by a single well aimed strike; two, build a distributed network of nodes, each connected to its neighbours; and three, build in a significant amount of redundancy in the interconnections” (p. 97).

Building on Baran’s decentralised model, the Internet was designed to connect different computing networks without them having to conform to one standard. Leiner et al. (1997) gather the recollections of many of those involved in the origins of the internet. They stress that “The Internet as we now know it embodies a key underlying technical idea, namely that of open architecture networking” (para 13). Openness and decentralisation were therefore key aspects in designing a system to be robust.

Abstracting from these fundamentals of the Internet, three core principles for robust design can be proposed for this analogy, namely that a robust system should be:

- Open – any appropriate contributor can join
- Decentralised – not reliant on one central node or location
- Distributed – functions are distributed throughout the network

Now to reconsider education, the online pivot can perhaps better be considered as a pivot to distance education in some form, in that it is focused on delivery and support to students who are remote from campus (even if they are living on campus and studying from their rooms). Online delivery is how this will be realised but it is the distance from the physical campus, lecture hall and exam centre that is the key factor.

The UKOU responses to the pandemic can then be viewed in the light of the internet metaphor and a desire to structure a more resilient system. Using the three attributes of a robust system proposed previously, the UKOU actions can be classified accordingly.

- **Open** – the increased traffic to the Open University’s OpenLearn site, which saw daily visits increase from 40,000 to over 200,000 during the pandemic (OpenLearn 2021), was a function of its open policy. Content was free, but also openly licensed so educators could reuse content on any subject in their own courses. The co-design of staff development programmes also saw a desire to learn more about OERs and Open textbooks. Similarly, the open licence on outputs such as the IP reports and GO-GN outputs meant that these could be readily accessed and adapted when commercial publishers were seeking to monetise the situation.
- **Decentralised** – much of the functionality required to support students and maintain the educational purpose of the university is not placed in one central unit in the UKOU. In addition, modules are designed by teams and delivered through a structure, rather than being reliant on one individual lecturer. Thus, it is not as reliant on any one individual for specific content as the lecture model. The desire for sessions on learning design demonstrates the desire to develop this kind of approach, and to be able to deliver learning online effectively. The interest in open resources and online laboratories also allows libraries and educators to be less reliant on physical resources.
- **Distributed** – students are not required to come to a central location instead studying at home or any location of their choosing, thus making it more robust if the central location, or gathering, is compromised. It is also distributed temporally in that much of the study is conducted asynchronously. Often the distance education approach does not rely on scheduled meetings, lectures, laboratories, or seminars at specific times. This asynchronous approach allows a much greater degree of flexibility, and therefore robustness, when things become disrupted. Just as the internet data packets can take different routes to their destination, so students can accommodate different time allocation to their studies. Distribution can also apply within the process itself, for example with assessment. By distributing assessment tasks throughout a course, using regular assignments, eportfolio tasks, self-assessment and end of course projects then the assessment becomes more robust than emphasis on a single exam. There are also pedagogic and relevance arguments for this approach but the focus here is on robustness.

Distance education as it is usually delivered is already largely online. It may not be wholly delivered this way, but there is usually an IT infrastructure including the virtual learning environment, support systems, content production and communication tools that are accustomed to handling the requirements of students. As long as internet access is reliable, distance education is itself based around a system that is designed to be robust. For instance, while the physical library building of many distance education universities may have closed

during the pandemic, much of what those libraries do is already online in serving students, so the impact is lessened compared to a campus library. This meant that it had in place many of the design characteristics of robustness that were useful in a crisis such as the pandemic. The six categories of activity highlighted above offer a means for developing aspects of this resilience in the sector more widely.

It is worth stressing that distance education was not designed with such robustness in mind. The usual aim was to develop a system that could be more inclusive and bring people into study who were otherwise excluded. So, it is worth examining where weak points exist in this system also, with the goal of identifying a model for higher education more broadly.

There are some potential risks and weaknesses in the distance education model as it is commonly realised that would still be affected by a crisis such as the pandemic:

- Student's home situation – the set up for students is very varied. Many will have a home study arrangement in place, but some will be using work-based access to computers, and if they are sent home they may lose that access. This can exacerbate inequality (Bekova et al., 2021).
- Home disruption – related to the above, the normal home set up will be subject to considerable disruption during a pandemic when a partner, parent, or children, may now be at home full time also and require care and support, adding interpersonal strain to the learning environment (LaRosa et al., 2021)
- Internet access and IT issues – the quality of home internet access can vary greatly geographically and the costs of this provision are shifted to students. Martin (2020) reported IT issues as the most commonly reported problem for students during the online pivot, stating problems “range from access to adequate computing equipment to having to learn new software and collaboration techniques associated with Zoom or its equivalents, to slow internet speeds at home compared with what would be available on campus” (p. 12).
- Staff disruption – academic and support staff may experience similar forms of disruption to students, from IT issues to social isolation (Flack et al., 2020).

Conclusion

The preceding analysis highlights how there are elements of robustness in the distance model which can be modified and adapted for higher education. It is not the contention of this paper that all higher education providers transform themselves into distance education institutions, but that robustness can be improved by adopting some elements of this model. The means to realise this transition is through the six categories of activity derived from the UKOU's COVID response. These activities would need to be undertaken beyond one institution and would be appropriate as a national or sector level response, for example through central funding for resources, research council funding for appropriate research, and governance encouragement for knowledge sharing. Ensuring more robust and reliable provision at a structural level such that continued operation does not rely on excessive workloads and strain on those working in higher education would seem to be one of the lessons that can be learned from the online pivot, which requires a systemic approach

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Ethics Statement

An ethics review was not applicable, although the author wishes to acknowledge the efforts of all the colleagues across the UK Open University and higher education sector.

Conflict of Interest

The author is a member of staff at the UK Open University

Data Availability Statement

Data for the individual projects listed is available via references or upon request.

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