Adaptable Economics Education –
what, why and how

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Abstract

In this paper, we describe and evaluate an “adaptable” education design for economics courses, developed in response to the Covid outbreak in 2020. The term “adaptable” embraces both online and in-person modalities, with a mix of synchronous and asynchronous elements. Based on the lessons learned due to the Covid-related disruptions, this approach provides a way to make the higher education system more resilient in the face of unexpected shocks. The key guiding principle for this design is flexibility, involving pre-recorded videos, audio outputs and written material plus quizzes and projects, which incentivize students to engage with the content on an ongoing basis, as well as reducing the risk of learning loss due to staff or student illness or other disruption. Students are provided with a structure for each week to enable them to scaffold their learning around the timing of a live session. We introduced this approach across all years of a large, technical and competitive-entry undergraduate programme in Economics, and evaluated its success in terms of student outcomes and satisfaction, and staff experience. In this paper, we provide evidence from mandatory as well as optional courses, and show that the integrated approach across the department contributed significantly to its success. On average, students did not perform very differently than in previous years despite the upheavals of the year, though performance improved for those with certain characteristics. In addition, student feedback is largely positive with the main concerns being around juggling multiple weekly engagement requirements tasks across different courses. Academic staff reported that the change in design required an enormous amount of work, but many plan to stick to the model in future years, whether on campus, online or a mix. Based on this, we provide tips on implementing an adaptable education model in a sustainable way.
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Introduction

Starting in Spring 2020, when universities everywhere were scrambling to go online as the Covid-19 crisis made traditional in-person education infeasible, our institution developed a “Connected Learning” plan which we used as a basis for an “Adaptable” model of education which worked for the specific needs of economics programmes. In this paper, we describe how the model was designed and implemented in a three-year undergraduate programme, with over 1,000 students. We evaluate, using quantitative and qualitative data, how the new model for economics education impacted the staff and student experience and student outcomes in the 2020/21 academic year.

We also make a case for retaining a model of Adaptable Economics Education within and across degree programmes beyond the pandemic, because it benefits student learning and it makes universities less vulnerable to shocks in the future. The term “adaptable” embraces both online and in-person elements and is designed to make moving in between the two modalities (or a combination of the two) relatively easy. This is of course particularly relevant in light of the COVID-19 crisis but may also be considered to be a helpful direction of travel in an uncertain world in order to make the higher education system more resilient.

What is the Adaptable Economics Education Model?

The term “adaptable” refers to three slightly different but related aspects of the education model we propose in this paper. First, from the point of view of lecturers, it refers to a model which makes it easy to switch between in-person and online modalities, and if suitable, allows a blended approach. Second, the model is not a one size fits all approach but a set of principles that lecturers can implement in a way that is flexible and enables them to adapt to meet their own context and content, within a module or across modules for a degree
programme. Finally, from the point of view of students, this adaptability refers to the fact that the structure of the education model is such that they can adapt it to their own needs and circumstances. In this section, we start by discussing why having such a model is important, and then in the sub-sections below, detail the key aspects of this model and how they can be operationalised.

The ability to switch between in-person and online modes of education has of course been particularly highlighted in light of the Covid-19 pandemic. This may also be considered a desired direction of travel to make the higher education system more resilient to shocks. In this context, “adaptable” is not equivalent to hybrid, that is, teaching online and in-person students simultaneously. There are two reasons for making this clear. First, we aim to include multiple models of adaptable education here, which could include a hybrid option. Second, in general hybrid models are the most difficult to deliver successfully and should only be used where there is no other option and where those delivering teaching are confident with this mode of teaching (REF). The apparent value of hybrid for students unable to come into the classroom needs to be considered on a case by case basis, relative to the quality of what can be reasonable offered to those inside and outside the classroom. It is there that the benefits of the adaptable education model we propose are most evident, with the focus on the student’s ability to take charge of their own learning, independent of the mode of live sessions with a teacher, especially in terms of timing learning activities to fit their situation.

Like any approach to education design and delivery, the Adaptable Economics Education Model needs to be based on best practice pedagogy for teaching and learning. As such, anyone adopting the model needs to ensure that what they implement is consistent with the following 4 key principles.
**Principle 1: Use a mix of synchronous and asynchronous components to meet the varying needs of students**

With an adaptable approach to education, lecturers will need to develop materials that can be accessed at a time that works best for the student and other activities that are live at a specific time to enable personal contact between students and the instructor. Even if much of this personal contact time ends up being in-person, using asynchronous materials can free up valuable space during this time for working on interactive or applied activities similar to the flipped or team-based learning approaches. The benefit of this approach is that it allows students to control how and when they learn, adapting the model to their circumstances, and provides the flexibility to switch between on campus and remote teaching at any time. (Bali and Meier, 2014).

1a) *For synchronous and asynchronous teaching, design short and interactive materials and methods.*

To keep students engaged and to manage the fact that virtual sessions can be more tiring for both lecturers and students, breaking the content into ‘chunks’ e.g. with a video on each concept rather than putting multiple concepts in one video helps with engagement. With asynchronous materials, pairing any passive reading/watching/listening task with an active task such as working out problems, discussing what students have reviewed on a discussion forum or taking a quiz, can help increase longer term retention. For synchronous sessions, lecturers will need to plan for interaction to complement the asynchronous material. Interactivity of course keeps students engaged and gives lecturer and students a break, particularly important when online speaking through a camera. Including such activities is best practice for in-person teaching as well. (Guo, 2013).

1b). *Make learning materials engaging and accessible.*

Using colour animations and images in learning materials to keep the student’s attention helps to make the asynchronous elements of adaptable education easier to manage. Though it’s best to ensure that these do not require too much bandwidth as that will make it difficult for students with low bandwidth connections. Make sure that all learning materials are accessible to all learners and especially those with disabilities, following your institution’s guidance in this area. This applies to materials used online or in an in-person session. (UCL’s guidance on this following UK legal requirements and best practice - 2021)

**Principle 2: Design assessment to incentivise timely learning, feedback and reflection**

In-term assessments keep students engaged with their studies, provide feedback on their progress, and reduce exposure to external shocks like the pandemic disrupting exams that are clustered at particular points in the year. This applies whether students are studying online or primarily in-person. Lecturers who have traditionally had a closed book exam will need to consider how to design questions that could be adapted to an open book (online) setting should the need arise. (Fuentes and Burnett, 2020) and (Bailey, Kinnear, O’Hagan and Sangwin, 2020)

**Principle 3. Communicate frequently and clearly with students**

It is important to give students clear instructions about what is expected in terms of learning activities and particularly the timeline of the course. Communications should help students connect the course learning outcomes, the synchronous and asynchronous activities, and their assessment.
Ideally, this communication should occur early and often. This is best practice for in-person teaching and is particularly important when students are learning away from campus. (Tanis, 2020).

**Principle 4. Invest time upfront in planning the (re)design of your course for adaptable education.**

To deliver a high-quality learning experience for students and satisfactory teaching experience for the lecturer delivering a two-hour lecture or one-hour class virtually ‘from the front’ is unlikely to achieve planned learning goals or maintain student satisfaction. Indeed, it is questionable whether this is the best default approach for teaching on campus as well (REF). Lecturers need to reflect on their choice of content and learning outcomes and think about how to best teach and assess in a way that can be adapted to changing circumstances and institutional requirements, potentially at short notice. (Glenn, 2018).

Operationalising these principles takes time and effort but as we discuss below in more detail, a lot of this cost is upfront with marginal costs being somewhat dependent on the size of the cohort rather than annual adaptations of the model. In the sub-sections below, we provide more detail about each of these principles and how they can be implemented.

**The optimal mix of synchronous and asynchronous elements**

The most important change when moving to an adaptable education model is the switch to asynchronous materials to deliver the bulk of the content. The traditional “lecture” or “sage on the stage” model focuses on content delivery by the lecturer in an in-person setting, or at most in a live video conference. This model has the lecturer as the centre of education, imparting knowledge and wisdom, while in the adaptable model, the lecturer’s role is much more of a curator, guide, and consultant. In order to realise such a role, the lecturer must first design and develop materials which benefit from their curation but are to be used by students independently and suited to their own learning schedules. The risk of such an approach is clear - what if students don’t follow through on this expectation? As mentioned above, the flipped learning model which has been around for a couple of decades faces the same challenges and provides some resolutions (REF).
The key features of a successful asynchronous learning design is brevity and a relatively narrow focus, as well as a clear idea of the big picture going forward and looking back. The research on learning science makes it clear that humans have a limited attention span, particularly online, and therefore the impact of a piece of content is much greater if it is tailored to fit into that span (REF). In addition, a relatively narrow focus helps manage the cognitive load of a piece of content. For example, producing separate videos on income and substitution effects both signals to students that these are different though related concepts and also helps them to concentrate on one effect at a time. In the student feedback we collected, details of which follow in later sections of this paper, participants also noted that this kind of “chunking” up also helps for revision as they can then go back to only the parts of content that need more attention rather than having to trawl through long videos to find the relevant bits.

Another key feature of effective design of asynchronous materials is a careful balancing of workload for the student. While in a live class, lecturers are constrained by the length of the class, in an asynchronous setting, they may be tempted to include much more content. An unreasonable expectation on workload means that students switch off, as they are unable to prioritize the important parts of the content and may see completing all the required tasks as impossible. One way to handle this is to think about how much learning time is expected in the course. Guidelines at our institution for example say that a one term course should involve 150 hours of learning, which includes live sessions, independent learning and assessment. Subtract the expected time required for assessment and divide the remainder by the number of weeks in term to see how much students can reasonably be asked to do in a week. For example, if we assume 50 hours for assessment and revision, then over a term of
10 weeks, students should be spending 10 hours on a course. If the live sessions are 1 hour long, this leaves 9 hours each week for asynchronous materials and activities. Making this timing expectation clear to students can help them also manage their time and they can also inform the lecturer if it is taking them a lot longer to get through provided materials, facilitating learning by doing on both sides.

Alongside developing the asynchronous part of the course, lecturers will need to think about the design of the synchronous sessions, including how they are related to the asynchronous elements and the intended learning outcomes. For example, the synchronous sessions may be run as a Q&A where students ask about anything that confused them in the asynchronous parts. These sessions could be where students are asked to apply what they have learned in the asynchronous part, similar to team applications in a team-based learning model (REF). Another option is to use the live session to introduce a relatively focused amount of new and more complex material which builds on the learning in the asynchronous parts. With this last option, lecturers will need to be aware that students used to pre-recorded videos in the asynchronous sections of the course might question the need to deliver content live when it could be recorded and watched at a different time, so the lecturer will need to think carefully about the motivation or this and explain it to students to get buy-in. Any combination of these approaches would also work, of course, and lecturers may want to choose one or the other in each week of term to provide variety in the learning experience. All of these approaches work whether the synchronous session is online or in a campus-based class setting. They all work with large classes and small classes, also, with technology such as polling software or shared documents that everyone works on simultaneously in the class,
providing a way to balance the activity design with the cohort size. Indeed the evidence we provide in the later sections of this paper relates to courses of very different size.

The final key feature of successful learning design with a mix of asynchronous and synchronous elements is the structure, which provides a framework and a schedule for students’ independent work. One option is a weekly structure - for example, if the live session is scheduled for a Thursday, then the week may run from Friday, when the asynchronous materials and activities are released, to Thursday, when they must be completed ahead of the live session. Scaffolding content in this manner helps in not overwhelming students with material and setting up a default schedule for them to work with if they struggle to organise their own schedule. Another possibility is a topical structure, in a course which does not cover a topic a week. If a topic runs over three weeks, then all of the materials and activities for that topic could be released at the start of the period, with signposts for which specific bits need to be completed before each week’s live session. Connecting the synchronous elements to the asynchronous ones in this way helps guide students’ learning and also incentivising their independent work as it makes clear that the learning in the live sessions is heavily dependent on the learning outside those sessions.

**Incentivising timely work**

As discussed above, a carefully thought-out learning structure can help incentivise students to work in a timely fashion, something that the research on learning science shows to be important for long term retention (REF). The incentives to learn are something that need to be designed with care in any kind of education model, but in an adaptable model with its stress on asynchronous elements and independent learning, this is even more important. How much incentivisation is required depends on the level of the students and their learning
culture, but as the evaluations in the following sections show, students appreciate having
commitment devices to help them follow through on their good intentions, and also help
those struggling, to uncover their confusion and get help at an appropriate juncture.

With a traditional fully in-person design, students know that they have a 2-hour
lecture for example, plus time for other activities. They may also be used to organising their
work around assessments at a later point in the term or the year, and not be used to working
regularly through the term. Indeed, many may prefer to work this way, focusing on other
activities in term-time, and will need incentives to move to a structured and timely approach
to learning that is best for their learning even if it is not their preference. Providing guidance
on the total of time they need to invest and how that should be spread across the term will be
needed to get them on board. Providing clear engagement points, based on the asynchronous
activities and live sessions, to back up the workload expectation reinforces the need for this
on-going learning approach.

First year students are likely to need the most help to organise themselves and work to
a schedule, having come from high school where there is likely to have been quite a lot of
built-in structure. One option is something as simple as giving them a to-do list for each
week, which they can work through and tick off. This provides clarity as well as a sense of
achievement when each task is ticked off. In our first-year course, we designed a Route Map
which aimed to do this and provided students with a curated tour through the material and
activities for the week. For older students, providing more open-ended and reflective
activities to complete, may work just as well. For example, lecturers could include a
discussion forum activity which asks students to post about the most surprising thing they
learned in the week. This is a fairly light touch approach for both students and lecturers, but
the expectation that this is submitted before the live session, because it is discussed at least in brief in that session, can incentivise students to stay on track with their learning.

For many students, grades and assessment are the ultimate incentive, so careful design here can also help to keep students on a healthy learning schedule. The research from learning science shows that the frequent opportunities to revise and reflect are beneficial for long term retention, so an assessment design which gives students such opportunities throughout the term both achieves this and by spreading assessment throughout term, reduces the chance of disruption due to a one-off shock. Good practice in such diversified assessment also implies that different kinds of assessment and assessments that measure different skills can also help deliver learning outcomes more efficiently than multiple instances of the same format (REF). Finally, diversified assessment may also help to make the learning experience more inclusive (REF), both in terms of all the credit not being linked to one assessment that may happen at the wrong time for a student or all the credit not being linked to one type of assessment that a student struggles with despite good understanding of the material.

**Effective communication to make it work**

The model described by the first two principles above is quite different from what students will be used to from school or indeed to their experience at university prior to Covid-19, where the structure is often much more live content delivery focused. Explaining to students, through online communications (emails, forum posts, syllabus and similar) linked to live announcements in synchronous session, about how the learning is organised and why it is organised that way is important to get their attention and buy-in. Emphasising that the model is designed to benefit their learning, including their ability to learn how to learn, and will have long-term value for them, is also important, particularly if the approach does not align
with a student’s preferences. The approach is new and may not be used in other courses so lecturers will need to repeat themselves regularly to get students used to the ideas embedded in the model.

Frequent communication about the logistics of the model is essential to make sure that students understand what is expected of them when. The communication from lecturer to students should make the expectations on the total hours of learning (independent and otherwise) as shown in the example above, clear from the very start. This helps students understand what time they need to put into their learning to meet the learning outcomes.

Alongside upfront clarity on the timing of key activities and assessments will help students manage their time across weeks and will reinforce the need for regular learning.

Breaking the total hours down into different activities, particularly the time to be spent on asynchronous work, is also a good way to manage student expectations and to help students plan their learnings schedule. Computing these times, especially for reading and reflecting activities may be difficult, so it is a good idea to err of the side of generosity when making these estimates. This exercise is also a good way to make the learning hours expected in a course more visible and is a major improvement over the traditional model where non-contact
learning hours are often implicit and therefore ignored by students which may then result in poor in the assessments. The screenshot below shows an example of such a system.

Using diagrams and other tools to illustrate the approach to learning in the adaptable model is also a useful approach to communication. For example, a planner or a workflow chart such as the one above may help students to understand the weekly or topical structure discussed in the first principle. Of course, it is important to not only provide the resource but also explain to students why and how to use it; and remind them of this regularly. A weekly ‘What you should be doing now’ video or email to students can be a valuable reminder here, getting those who may have veered off track back into the loop.

In addition to explaining the structure of learning to students, it is important that lecturers and other teaching staff open up opportunities for two-way communication so students can ask questions about content or logistics when they arise. Integrating discussion into an adaptable education model is crucial to its success. Content-focused forums where students post questions to clarify materials in the synchronous and asynchronous components
of the learning are the obvious place to start but encouraging students to answer each other’s questions on here is a good way to strengthen active learning even in an asynchronous setting. In addition, using the forums to communicate about the logistics of the course is a good way to engage in a conversation with students, for example about the motivation for having an assessment at a certain stage or a particular timeline for a project which helps to get student buy-in.

Many students will still also value the opportunity to ask questions in person, through office hours for example. Making clear when and how students can connect with the teaching staff, on campus and/or online, is crucial here. It also helps to regularly remind students of this opportunity and provide some tips on what they can come to office hours about, particularly if the culture is to not attend.

Given that the virtual learning environment plays an important role in the adaptable education model, using the analytics produced automatically in such systems is an additional way to check on students and keep the conversation about learning going. The screenshot below shows a message we sent out to our students at the midterm point alerting them to our plans to follow such a path as a pastoral check-in.

3. Over this week and the next, your tutors and I are reviewing the analytics data from Moodle and Echo360 to check on your engagement (and attendance in the live session). Some of you will receive emails from us if it looks like your level of engagement is of serious concern. Even if you don’t receive such an email, it’s a good idea to review your activity completion/engagement yourself and if you missed some of the learning materials or opportunities (Sway, videos, discussion forums, live sessions etc), to make sure that you use Reading week to catch up. This is a difficult time and many of you will have different challenges (as do I), so we want to make sure that you are OK and in a good place with your learning. Because of the design of the learning in this module, it is quite difficult to catch up at the end of term, when you will have a final quiz and a research project to work on. If you have any personal concerns, please email for an appointment or drop in to office hours (I will hold them as usual on Monday during Reading Week).

Each student who had not engaged to a minimum degree (completed assignments and quizzes, logged into the polls during live session, posted on the forums etc) was sent an email
by the lecturer checking-in with them about their welfare and its impact on their academic studies. This was a very light touch intervention, but the response of students was positive, with most getting back in touch to explain their situation or directly increasing their engagement in response to the lecturer-led communication. One of the potential pitfalls of a model like this with a significant asynchronous element is that the less motivated students or those with distractions in their home lives falling off the “learning wagon”, and this kind of nudge appears to either identify issues which the student can then get help with or just to re-incentivize the timely learning which is so essential in a model like this.

It is important to remember that this third principle around effective communication is integral to the model. It is not a nice to have add-on, but a necessary condition for connecting students with the learning model in the intended way through the course. Taking your eye off the ball on communication sends a signal to students that they can also take their eye off the ball and the structure of learning may get lost, significantly reducing the embedded value of the model.

**Investing time and effort to set up and deliver the adaptable education model**

All of the elements described above which are required in order to satisfy the principles of adaptable education are resource-intensive for teaching staff, particularly for those who have been teaching a particular course for a while. Producing appropriate materials and activities for asynchronous and synchronous learning is not as simple as showing up to deliver a live lecture that you have done several times before and posting a reading list. A lot of thought needs to go into design of each element, as well as the relationship between them. Much of this has to be done upfront, at least at a high level, to be able to communicate the plan of action for the course to students upfront. Of course, the detailed execution of the plan
can happen through the course and indeed it is advisable to proceed in small stages so that your approach can adapt as you learn from implementation.

One of the advantages of producing small chunks of asynchronous material as suggested above is that these can be updated as required in small chunks as well without having to redo all of the material. Thinking carefully about developing materials which are relatively long-lived is quite important as well. If recording videos is what takes the most time, then recording more theoretical parts of the course which aren’t likely to change much over time and leaving applications to readings or the live session may help, for example. As discussed later, staff in our economics degree found the move to adaptable education very time consuming but now they have prepared materials they are planning on re-using them going forward and making the most of synchronous sessions with students back on campus.

Of course, this does not take away from the need to also spend time planning what you will do in synchronous sessions to complement the asynchronous materials, and how you will embed assessed and non-assessed activities through the student’s learning journey. Some of this thinking, design and implementation can be re-used in future years but in other cases adaptation each year will be needed. Finding options that meet your time availability is important and discussing with colleagues what they have tried and how it has worked is a useful way of considering the impact of options so that you can consider the value of the return to your time. Encouraging your institution to provide suitable support and resource (human and capital) to enable the model to be implemented as efficiently as possible, for the good of student learning, is also important.

Communication, particularly one-to-one with a big cohort is extremely time-consuming, though doing much of it through a discussion forum can help limit the number of
emails with the same question. Because traffic on a discussion forum is driven by the speed and helpfulness of responses, it is a good idea to establish some expectations at the start of term (e.g. lecturer responses will be posted within 24 hours or there will be no lecturer responses over the weekend) and stick to them. Budgeting for a teaching assistant to help answer questions and drive the discussion is also a good idea. The light-touch pastoral check-in discussed above can be relatively low cost – Moodle and most other online learning providers allow logs to be downloaded quickly and the light-touch approach means that a quick look through can throw up the students to be targeted with check-in emails. The emails themselves can be form letters but sent out personally to get students’ attention. The cost of these logistics is not negligible so sufficient administrative support will need to be budgeted for.

The adaptable education model is quite a new approach to teaching and learning particularly in Economics, and there is no doubt that there are significant upfront costs no matter how we try to reduce them as above. The benefits come from active learning which has been shown to be better for understanding and long-term retention (REF), students being more engaged with the course through the term, and the enhanced resilience of the education model to external negative shocks without the need for emergency changes at short notice (as happened with the pandemic). This latter argument may be particularly useful in convincing lecturers who worry about the amount of work the move to such a model entails but also recall the disruption of having to make changes at short notice in Spring/Summer 2020. The model also facilitates occasional live online session for courses that are largely in-person, which can help accommodate lecturers’ travel to conferences or for family reasons, thus reducing the disruption to their teaching that would have been inevitable in a more traditional
model. Getting buy-in from colleagues who may be more tied to older ways of teaching is quite important because as we see in the Outcomes and Evaluation section below, this model works best when implemented across an entire degree programme rather than on a course-by-course basis.

Making it work

Given the significant cost of implementing the adaptable education model, and the urgent need to implement the model effectively for the 2020/21 academic year, we took steps to ensure that the model would work in practice before rolling out. This pilot phase proved invaluable for managing practical challenges and getting input from students and colleagues to ensure it worked for all. Of course, testing continued through the first term (October to December 2020) with on-going feedback being used to improve the implementation of the model, both in that term and feeding forward to others for the next term. As discussed in the Outcomes and Evaluation section, a whole year review of the model in action has been used to improve how we use the model in 2021/22. This process of review and reflect is of course best practice for any mode of teaching but particularly important for such a significant change across a whole programme.

Making sure it worked for us

Our first test for the model was to ensure it worked in our own courses, which already embedded many aspects of the principles of the adaptable model as we taught with part-flipped approaches that included regular term-time assessments. If we struggled to design our courses with this model, despite being a good part of the way there, it would be very difficult to persuade colleagues of the value. We also needed prototype materials and ideas to share with colleagues and to get student feedback on before ‘going live’.
We focused on Moodle, our institution’s virtual learning environment, as the classroom for adaptable education. Working alongside our digital education team we designed a template page for our programme, using materials and activities for our modules to illustrate how the template could be used. We tried out different technologies for asynchronous materials and activities and adapted resources for synchronous sessions. We were able to use pre-existing materials that we had, with small adaptations to them, giving us confidence that it was a feasible model to work with in a short space of time. This was done in Summer 2020, in the knowledge that what we had was in prototype form for our modules. However, we could see the virtue in the structured approach and knew that it was a workable option that we could build on in our own modules and support colleagues with.

Co-design with the student-eye view

In addition to providing us with confidence in the model, our prototype of the model in the virtual learning environment enabled us to get students to provide feedback on our draft materials and activities organised in a structure consistent with the model principles. We were fortunate to have funding for two students in their second and final year to stress test the model. The provide invaluable feedback on design elements and suggestions on how different delivery options for asynchronous and synchronous materials and activities could work for different types of courses. They were able to comment on how the adaptable model could work within a course but also emphasised the importance of consistency of approaches across a programme from student-eye view. In particular, they thought the use of a template for Moodle, with a menu of options for staff to select from that best met their needs, and a week-by-week or topic-by-topic set-up would make it easier for students to understand, buy-into and engage with the model. If students saw very different approaches across courses, it would
be more difficult for them to understand what the adaptable education model was and to work in line with the principles of the model. We made a number of changes to our template and also shared the student advice with all colleagues. The students reported through 2020/21 that they enjoyed seeing their ideas come to life in their own courses.

As our students were studying remotely all around the world in 2020/21, we also asked the students to test which technologies worked best in different regions. The students themselves were in Asia and they engaged with their peers to test different software for asynchronous recordings, online resources, polling software and live-streaming synchronous sessions. The feedback we received allowed us to pinpoint potentially difficult technologies and to present colleagues with a menu that we were confident would work across the world, except of course of any individual teacher or student had their own connection issues.

**Making sure teachers were confident**

The final phase of our pilot approach in summer 2020 was to provide training and support to colleagues about the model. We rolled out the Moodle template to all the courses, incorporating a staff area on how to make best use of the online classroom in a way that was consistent with the principles of the adaptable education model. We set up an MS Teams site, as a discussion forum for everyone to ask and answer each other’s questions. We and colleagues were also able to share resources and examples of materials being used on the site. This remained live and active all year. We ran a series of workshops, using a mix of synchronous technologies including Zoom, Teams and Blackboard Collaborate, focused on both the pedagogy of different elements of the model, practical tips on how to take it forward and technology briefings on how to implement online. We also hosted one-to-one office
hours for colleagues so that they could get feedback on their plans and made sure that the support was available through the term as everyone took the brave step into the unknown.

Most of our small group teaching is delivered by Graduate Teaching Assistants who also required support with the new model and learning environment. We worked closely with the IT team at our institution to ensure suitable equipment was made available to these teaching assistants and provided training, through a TA-specific MS team, on the aspects of the model that related most to them.

Through the first term we asked colleagues for regular feedback and updated advice accordingly. We also hosted a workshop for those who taught in Term 1 to share lessons learned with those who were preparing for Term 2. Many of these lessons learned were shared with colleagues in other Departments in our institution as well. We were very impressed with the engagement and effort from colleagues to what was a significant example of disruptive innovation in economics education in a large and prior to this traditional programme. The success of our model, as discussed below, is due to their dedication and efforts to make a plan come to life.

Outcomes and Evaluation

Between September 2020 and November 2021, we implemented the Adaptable Economics Education Model across a large undergraduate programme, with a mix of on campus and online teaching in 2020/21 and campus-based hybrid teaching at the start of 2021/22. In 2020/21 the university had social distancing and restrictions on campus-based activities for the first 8 weeks and then full lockdown with no campus-based activities from mid-November through the rest of the academic year. This is where our model really came into its own, making adapting to the changing circumstances relatively straightforward, with
most materials and live sessions already online and those that were campus based, with live streaming for those not on campus, able to switch to delivery from the professor’s home relatively smoothly. In 2021/22, teaching came back on campus but not all students were on campus, and the model was adapted again to meet the needs of all students.

Through the period we collected data on student engagement, feedback, and outcomes from our virtual learning environment (Moodle) and the Echo360 platform that we used for livestreaming and sharing video recordings in many courses. This rich dataset provides us with useful insights on what type of activities students engage with, how this engagement affects their performance and their satisfaction with their learning experience.

To supplement the quantitative data, we collected qualitative data on the student and staff experience through surveys, focus groups and one-to-one interviews. We obtained anonymised student feedback in course surveys (Department run) and programme level surveys (run by our Faculty/School and our institution across all year groups). We dug deeper into the survey findings with focus groups, led by student research assistants, across all year groups in Jan and June 2021. Alongside this, we were mindful of the need to understand how the model worked for those who deliver teaching, to identify what support was needed with implementation and to develop greater awareness of what lecturers, many of whom were not used to innovating in the classroom or with assessment, found they would retain for teaching in the future. The lecturer feedback was obtained through a survey, discussions on a staff forum (on MS Teams) and interviews undertaken by a student research assistant.

The mix of quantitative and qualitative data provides us with a detailed picture of the student and teacher experience with the model, in what was a challenging academic year. We are able to get a student-eye view of how the model performs at programme level, across year
groups, as well as understanding the rewards and challenges that were common across staff. Our evaluation of student experience, student feedback and student outcomes meant that we had a good understanding of what elements would be most useful to retain for 2021/22 and beyond, and what elements required further adaptation in response to both feedback received and changes to the delivery mode of teaching.

It is important to emphasize from the outset that we do not attempt to compare the experience of staff and students since March 2020 to previous years in a very rigorous way. Our data relates to an outlier academic year (2020/21) with so many different factors impacting on student learning and staff and student morale and well-being that it is difficult to clearly identify causal mechanisms. Many students and staff were not in London, and of course many were ill, had caring duties or were generally struggling. It is not possible to control for all the varying impacts of a pandemic, and policies to manage the pandemic, on this education model. However, staff and students are often faced with turbulence in their lives, and universities can be hit by other exogenous shocks (eg, loss of teaching space to a fire), making it important to understand the value of the adaptable model for the world of higher education beyond the current pandemic situation.

**Student experience with the Adaptable Economics Education Model**

We, like most university educators, started the 2020/21 academic year with trepidation, concerned for staff and student welfare and nervous about the extent to which students would be able to learn in what was an entirely new way for them and their teachers. We knew the education model that we had designed was underpinned by solid best practice pedagogy for economics education, much of which had been tested in an on-campus environment by some courses in previous years. However, there was an a priori expectation
that given the circumstances, and the lack of familiarity with the new mode of learning, that student engagement would be lower than in previous years, potentially more erratic and that it would be difficult to achieve consistent patterns of engagement at programme level.

What we found was that student engagement followed in many ways the intended patterns of the model and did not appear to have been disrupted by the pandemic to the extent expected upfront. As shown in Figure 1, students engaged when there were nudge points to do so, for example regular quizzes or assignments, term-time assessment (moving away from an entrenched model of end of year 100% exams) and where there were clear linkages, well-communicated, between the value of engaging with asynchronous materials ahead of attending a live session with the lecturer.

Engagement varied across courses, with cohort-size, lecturer and course specific effects influencing how students behaved. Whether lecturers adopted the adaptable

*Figure 1: Engagement rates across modules by learning activity*
economics education model in full, partially, or not at all had some impact, as shown in

<table>
<thead>
<tr>
<th>Full year/ Term 2</th>
<th>3k</th>
<th>3a</th>
<th>1d</th>
<th>3g</th>
<th>1e</th>
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<td>183</td>
<td>752</td>
<td>182</td>
<td></td>
</tr>
<tr>
<td>AEM Model Use</td>
<td>F</td>
<td>N</td>
<td>N</td>
<td>P</td>
<td>F</td>
<td>P</td>
<td>N</td>
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<td>P</td>
<td>N</td>
<td>F</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>Average Engagement Rate with main activities</td>
<td>77%</td>
<td>75%</td>
<td>74%</td>
<td>72%</td>
<td>68%</td>
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<td>48%</td>
<td>46%</td>
<td>43%</td>
<td>41%</td>
<td></td>
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</tbody>
</table>

*Figure 2: Illustration of engagement variation across modules in Term 2*

Engagement levels were not always high, but the trends we saw were very much in line with previous years where these are comparable. In particular, student engagement dropped off as term progressed and there were more pressures on student time, both within their programme and outside. This was no worse in 2020/21 than previous years, despite many students facing personal struggles due to the pandemic. There was also a similar trend for synchronous and asynchronous activities, suggesting that students treated them as complementary in the way that they were conceptualized in the model rather than as substitutable.
Figure 3: Engagement with activities over time in Term 1

Figure 4: Engagement with activities over time Term 2
We observed higher levels of engagement with first years and lower levels with final years, again a pattern consistent with our experience before 2020/21. Students joining the programme focus more on their studies and those in the final year have developed their own approach to learning and balancing multiple demands on their time. As shown in Figure 5, final year students were more consistent across terms, with a far less significant drop in engagement in Term 2 compared to students in the earlier years of the degree. Again, this may reflect final year students having a greater ability to self-motivate and self-manage, with their own established peer networks. It may also reflect the importance of the final year on the calculation of the degree classification and hence the need for consistent levels of effort across all courses.

![Engagement Rate by Year and Term](image)

*Figure 5: Engagement by year group (Level 4 = Year 1; Level 5 = Year 2; Level 6 = Year 3/Final year)*

Students emphasized in surveys and focus group discussions that they valued being able to work on content in their own time, for flexibility but also because it allowed for better note-taking relative to the time pressures of a live lecture. They also said that quizzes, polls,
and discussion forums provided an excellent complement, allowing for students to check-in with their understanding of the materials and to raise queries when they came to them. Working on your own did come with downsides, with many commenting on asynchronous materials being overly-long, monotonous and time consuming as illustrated in the word cloud in Figure 6. The main recommendations made by students were to keep videos and other materials short and focused and to ensure relevant connections between asynchronous materials, synchronous live sessions, activities, and assessments. There was overwhelming support for retaining asynchronous materials and activities, even when synchronous sessions are on campus.

![Figure 6: Words used by students in surveys when commenting on asynchronous materials](image)

Considering synchronous sessions, student feedback emphasized the value of interactivity in large groups, for example through polls. They also appreciated lecturers using the time to work through examples of how to apply the asynchronous content to different situations and working through example assessment questions or walking through the steps of more difficult content live. Students were less positive if the synchronous session repeated...
what was in the asynchronous content too much, or if was not connected at all. The complementarity between the asynchronous and synchronous materials and activities was important, and lecturers need to find the right balance between the two. Having the sessions online, either for all or as an option, was considered valuable, particularly for those who required more flexibility such as commuting students or those with disabilities.

For small group teaching, there was a general feeling that on campus would be preferable to online, not least because of issues with fellow students not engaging in discussions and some concern, from staff and students, that it was difficult to have these sessions when cameras were not switched on. Students in focus groups suggested that verbal and body language cues amongst peers were more important in these small group settings and harder to pick up online. For both large group and small group teaching it was emphasized that the teacher needed to be confident with the technology for the sessions to be effective, with this comment becoming less prevalent through the year as staff become more comfortable with their choice of delivery technology.

Students liked when material was organized in a weekly structure. There was general agreement that the design of the Moodle template helped in this regard, making it easier to find connected materials, activities, and links to online sessions in one place. Student feedback in surveys and focus groups emphasised that they were more likely to engage through the teaching term where the teaching staff delivered regular communications about what needed to be done when and where the online classroom, on Moodle, was well laid out and easy to navigate. Helping students with understanding what was expected when, whilst giving them flexibility to decide when within a week to do the work, was an effective strategy. Students generally recognised and appreciated the efforts that staff had put into their
online learning journey and also noted how much help and support was offered. They appreciated online office hours and suggested that they be retained when on campus as it was more convenient than trying to be at the relevant office at the right time. Group office hours were noted as a particularly useful extra innovation, with many noting the value of learning from peers’ questions.

Despite all these positives about learning online with the adaptable education model, there were pleas to streamline the range of technologies used within and across courses, to reduce complexity for students and suggestions that more could be done to take advantage of accessibility features such as captions online. Of course, students and staff also recognised that the learning was only as good as the reliability of the internet connection and access to suitable software and hardware.

Whilst is it nice to see that the students engaged with the materials and activities in the adaptable education model that were designed to keep their learning on track, it is important to recognise that this does not mean that students felt the experience of university online was comparable to an on-campus experience. What students say they missed out on was not teaching of economics but wider value of on-campus experience including socialising but also unstructured interactions and learning opportunities with staff and peers inside and outside the classroom, for example having a chat about a point of confusion leaving the lecture room. Where group work opportunities were offered these were greatly appreciated for the social interaction value as well as the learning opportunity, but they were limited for each year group. These are the elements of university life and community building that are difficult to replicate in an online environment.
The isolation, of the pandemic and consequent remoteness from university, also had a detrimental impact on mental health of many. Students felt overwhelmed by workload with one of the downsides of flexibility being an increased need to self-manage your time. For example, student feedback suggested that those working in different time zones may have overloaded their day living/working in two time zones and did not have contact with other students to know what was considered appropriate. Motivation was also lower with online learning in a pandemic, as shown in Figure 7, requiring students to expend more energy to engage than perhaps they had done in the past. Many students noted it was harder to motivate themselves at home than it was when on campus with peers for example. This suggests the need for better guidance on time management and explaining to high achieving students that sometimes they have to stop at ‘good enough’ in a more flexible learning environment.

Students also suggested that more could be done at programme level to coordinate deadlines.

![Bar chart showing student motivation levels](image)

*Figure 7: Proportion of students who felt less or more motivated learning online relative to on campus, whole programme*

Student satisfaction was broadly positively corelated with student engagement, with as normal variation across courses. The move to online learning, with the adaptable education model, did not have a significant detrimental impact on student satisfaction. By Term 2, as shown in Figure 8, students were potentially more accepting of online learning given there

and wider burden of work across courses.
was a national lockdown and hence a higher positive relationship between engagement and satisfaction relative to Term 1 where the relationship was flatter.

**Staff experience with the Adaptable Economics Education model**

The fact that students engaged so much with the learning activities, despite the difficult circumstances of everyone’s lives, is testament to the effort put into redesigning and delivering teaching by lecturers and teaching assistants. This was not an easy journey for most staff but as the need for change was clear it was not an option to stick with what had been done before. Economics lecturers on our programme rose to the occasion and adapted really well.

Considering the big picture of the model, most lecturers adopted the adaptable education model either partially or in full in their courses, building on the template provided

*Figure 8: Correlation between student satisfaction and student engagement (Term 2)*
as the virtual classroom on our VLE. The model leaves a lot of scope for lecturers to decide how best to teach their content and what technologies to use and in what context. We saw a mix of technologies being used for both preparation of asynchronous materials and live sessions, with all lecturers working with our advice to choose one or two technologies that they felt most comfortable with so that they could reap the rewards from initially high fixed costs and steep learning curves. By the time we had full lockdown and a move to delivering teaching from home, the shift was relatively easy as we retained the model approach and timetabled live sessions which were delivered through technologies that people were used to.

The support provided before the start of the academic year, and in the transition phase at the start of each teaching term, was greatly appreciated by staff. Most were not only getting to grips with new technologies but also the need to change their overall pedagogy in teaching and assessment. Having a menu of options to reflect on and choose from helped, as did the on-hand advice of colleagues in workshops and on the staff discussion forum on MS Teams. The adaptable education model was not mandated so of course some took their own route but if they ran into difficulties the advice available remained useful. There was a significant sense of comradery amongst staff as they faced the challenges together and succeeded in delivering an innovative and successful approach to economics education. This success does not take away from the fact that the creative destruction was hard work and left staff exhausted.

Feedback from lecturers was the time and effort required to implement the adaptable education model was significant. The main issues were to do with practical challenges of recording videos for asynchronous materials, linked to for example the time it took to process videos for sharing. This was more a frustration with cumbersome technologies rather than the adaptable approach to economics education itself. After the videos and other asynchronous
activities and materials were prepared, most lecturers agreed that it was a reasonable idea for students to engage with materials that were delivered ‘from the front’ in this way, seeing the value of them having the flexibility of when and how to learn the material. This is an element that most wish to retain going forward, even when back on campus. Some are even considering extending this part of their course to free up time for other activities in synchronous sessions.

Some lecturers struggled initially to work out what they would cover in interactive synchronous sessions, with most of the core material they taught live before presented in asynchronous format. Lecturers were faced with the difficult question of ‘What is the value of students being a room with me’, leading to much discussion and debate about the purpose of a live session. A number of different forms of interactive session developed, varying by lecturer style and course content, demonstrating that there is not one answer to the question about the purpose of the live session. Some lecturers used the time for large group Q&A sessions, others took the opportunity to work through practice assessment questions, others spent the time discussing the more advanced parts of the material provided asynchronously and others used the live session to engage in a discussion linked to the materials, for example about a current real world issue requiring students to apply what they were learning new situation. Most lecturers made use of technology in the live session, particularly polling, to gauge student understanding of issues whether online or on campus. Students generally engaged with these forms of interactive session as much as live lectures in the past, and in many cases more. In the feedback they provided, staff did not discuss the time required for these activities suggesting that interactive sessions with students required less preparation
than the asynchronous materials. However, time was needed to plan to ensure everything fitted together.

The shift to online assessment, that happened in an emergency way in Summer 2020 but was planned for in 2020/21, was one of the most difficult adaptations for lecturers. Given a long tradition of end of year closed book exams, staff were not familiar with how to design alternative assessments. Many also questioned the academic integrity and wider value of alternative assessments, at least at the start of the process of making changes. Lecturers were also uncomfortable being told they had to change their assessments, rather than coming to the case for change themselves.

Despite these initial reactions, staff moved effectively to a mix of different assessment types online. Students saw a variety of assessments, ranging from 24-hour open book exams to short online quizzes, to one week coursework to whole term projects (often in groups). In a high proportion of courses, students had assessments through the term. Staff saw the value of this for incentivizing students to engage with the material and spread their learning through the year. It was emphasised however that it was a significant amount of extra work designing and marking multiple assessments, a cost some are not willing to retain for the future. It was also noted in some subjects that it was important for students to have time to reflect on what they had learned to be able to respond to questions and hence the need for some revision time before assessments later in the year.

A significant amount of time was invested into designing new styles of questions and providing students with examples and practice opportunities for these different forms of assessment. This was the first time designing open book assessments for many lecturers and with support we saw a range of interesting questions being asked, without undermining the
rigour of our degree. For all of us, we continue to learn by doing and there is scope for on-going innovation in this space.

Thought also had to be given to how to apply marking criteria to online assessments, considering for example how to reward the ability to find facts and central model results in course materials and the need to reward creativity and the ability to use what had been taught in new unseen contexts. Lecturers saw the value of being able to ask a wider variety of questions and to work with students to learn the content and develop the skills of applying economics to answer questions. Some subjects lent themselves better to this than others, with most teaching more quantitative subjects saying it was difficult to design robust assessments that were open book.

Assessment outcomes

As emphasised earlier, a key motivator for student engagement is assessment. The adaptable economics education models spread the assessment load through the year. The move to online learning and open book online assessment encouraged lecturers to develop mixed types of assessments that are most suitable for the learning outcomes and learning design of a course. This was a significant shift for our department where in 2018/19 (our baseline year for the past norm) nearly 50% of the courses had all assessment linked to one closed book exam at the end of the academic year and most others had the majority of credit linked to an end of year closed book exam. As shown in Figure 9 and Figure 10, the spreading of assessment through the year kept students on track from an engagement perspective. Even with low stakes assessment, students were more likely to engage than they
did with non-credit, formative work. Although it did also lead to more staff work, dealing with queries, complaints and marking. There is a balance to be struck.

The more assessments there were the higher the engagement level, as illustrated in Figure 11. This reinforces the prior expectation that incentives through the term would help students manage the need to learn on an on-going basis.
Assessments during term were valued by students, as well as having a mix of assessment types and having them open book. Comments in the focus groups included the fact that open book allowed students to show what they knew and ability to apply economics knowledge. Students noted that open book coursework prioritises in-depth learning and application over speed and remote learning. Students would have liked lecturers to be more explicit about the rationale for different assessment types and to understand better what was expected to do well, given these were new types of assessment for most students. Longer submission windows helped students who feel pressured by time constraints perform better and accommodates for time zone differences. There was some concern that open book assessment questions were designed to be harder than previous closed-book exams. Where timed exams were used (24 hours in general), students found that they worked for the whole time even where recommendations were made to spend say 2-3 hours on the paper. This indicated again that students needed some help in time management and understanding when
to stop. There were also complaints about bunching of assessment deadlines within term times, something for staff to work on now that the change in assessment approach is more embedded.

Data from across year groups and courses shows that there was no clear correlation between engagement levels and outcomes at aggregate level. When we look at the more detailed data by activity, we find that engagement with learning-by-doing activities and content-rich activities and materials had the strongest correlation with outcomes. For example, in first year term assignments and quizzes were the most highly correlated activities with final outcomes. Whereas in second year engagement with live sessions and asynchronous materials were the activities most highly correlated with outcomes. For final year students, engagement had less of an impact on outcomes, perhaps because students had developed their own learning strategies that affected grades prior to the model being established. Although student feedback suggested the discussion forums were very valuable learning tools, there was little correlation between engagement with them and final outcomes perhaps because both weak and strong students were the most likely to post.

<table>
<thead>
<tr>
<th>Correlation between Average Engagement in Activity Types and Final Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Year</strong></td>
</tr>
<tr>
<td>Average Eng Pre Lecture Asyc Material</td>
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<td>Overall Result</td>
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<tr>
<th><strong>Second Year</strong></th>
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<td>Average Eng Pre Lecture Asyc Material</td>
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<th><strong>Third Year</strong></th>
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</thead>
<tbody>
<tr>
<td>Average Eng Pre Lecture Asyc Material</td>
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<td>Overall Result</td>
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</table>

*Figure 12: Correlation between activity engagement and final grade (outcome)*
We consider here whether the change in assessment format and timing, coupled with wider changes in the teaching and learning design and implementation from the adaptable education model, impacted on the grades students received at course level. We do not consider degree classifications overall as several amendments were made by our institution, as mitigation for Covid, that meant fewer courses were considered in the degree classification than would normally be the case. It is more straightforward to look across different courses, with mixed assessment types, to examine the impact on student actual performance before university adjustments were made. The assessments at course level were marked using the same criteria as previous years and were designed to be at a similar level of academic standard as before, checked through usual quality assurance processes.

You might expect a number of priors here. The changes may lead to higher grades (‘inflation’) linked to the fact that assessments were online, potentially making them easier and/or increasing scope for some form of cheating. This might be true for some forms of assessments more than others, with some arguing that online exams conducted in a short period of time may reduce scope for advantage.

On the other hand, students were being asked to engage with new forms of assessments that they, and their teachers, were not familiar with which may have lowered marks if students were less well prepared (bearing in mind that for many closed book exams was also how they were assessed in school). This was particularly the case for assessments at the end of 2019/20 where students were assessed in a new way that was not expected, with no training through the year for variety of assessment methods.
A final prior could be that there is variation in the impact of the change in assessments across students, with some doing better than they would have done with closed book exams and others doing less well. In further research we will examine this further, but here we can at least consider the hypothesis by examining the impact on grade distributions.

What we found was that the average mark did not vary within and across courses, showing that the move online did not have a detrimental impact on student outcomes. The move to online assessment did not lead to significant grade inflation either. The mixed assessment methods inevitably showed mixed distributions, as expected. This helped reduce the lower tail of our distributions, suggesting that students that struggled with 100% closed book exams may have benefited at the bottom end of the distribution from having online assessment, mixed assessment types and assessments through the year. The correlation and causation of such an effect requires further investigation.

Figure 1: Year 2 assessment grade distributions

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Conclusion

With Covid-19 still in our lives, and potential shocks from other sources including natural disasters, extreme weather events and indeed individual staff situations that make coming to campus difficult, there is comfort in knowing that the adaptable education model allows for easy pivoting between campus and online teaching. Our first year of implementing the model was of course not a standard year for either students or staff but our evaluation has shown that with significant effort and careful design and implementation, the model can provide resilience and flexible learning opportunities that deliver desirable levels of engagement and outcomes in terms of grade distributions.

As with all education models, we have learned a lot from our review and no doubt will continue to learn. In 2021/22 we are delivering the model in an institutional structure of hybrid teaching, not necessarily the preferred mode of delivery. Mark II of the model involves being on campus for synchronous sessions, with parallel live streaming to those students who cannot be on campus at any particular point in time. Being back on campus does not mean reverting to old ways of teaching and learning, with the majority of lecturers continuing with the mix of asynchronous and synchronous materials and activities, incentives through the term to engage, including assessments, and regular communication check-ins.
Students continue to value being given ownership of when and how they learn asynchronously and value the nudges, from communications and timed activities, telling them what to engage with when. They also have an increased appreciation of the value of being with their peers, with indications of greater interest in group work for example than was the case prior to Covid-19. The concern of students being unsure how many hours to put into different activities remain and support is needed in particular for those transitioning from school on learning how to learn in higher education. Our data allows us to break engagement and outcomes information down by student characteristics, combining the analytics available from different systems including registration records. The next stage of our research is therefore to establish whether our findings vary across different categories of students.

All assessments remain online and open book, with experience allowing for improvement in design and delivery of mixed assessments in the programme. Students are also becoming more familiar with the assessment types, with their confidence coming through in how they engage with and approach the work required. They remain concerned about the need for lecturers to be clear on what is expected, both in terms of length of time to spend on an assessment and how it will be marked when online. There is work to be done in this area going forward.

Our evaluation reinforces the need to consider how to make best use of time on campus, for staff and students, so that the value of well-designed, flexible, online learning tools can be combined with time for genuine interactions in the classroom. Technology and the adaptable approach help us to use time together well with a new sense of appreciation of the value of being in the room together. For those, like us, in a space constrained campus in a large city this also lends itself to a more holistic review of how best to use teaching spaces
given an adaptable approach to economics education. Adapting our perception of what a
teaching space is, whether online or on campus, is an interesting next stage to this model.
References

There are no sources in the current document.

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