To record or not to record? That was the question

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INTRODUCTION

Lecture Capture was officially introduced at the University of Northampton during the 2016–17 academic year. The policy formalised existing practice whilst simultaneously recognising the institutional shift away from large-scale lecture delivery to Active Blended Learning (ABL) – the standard method of teaching at Northampton (University of Northampton, n.d.). Under an ABL approach, synchronous tutor time is centred on enabling interactive and personalised learning opportunities. Live, one-way transmission of theory or content is reserved for those occasions where using face-to-face time for this activity is pedagogically appropriate. All programmes therefore incorporated some elements of online learning following years of planning, design, development and practice. The Lecture Capture policy at Northampton reflects this pedagogic approach: pre-produced custom-made recordings that can be used as part of a wider asynchronous learning activity either before or after live sessions are prioritised over using synchronous time for content transmission. Where this is not possible, staff should record any one-way transmission elements of synchronous sessions but not the interactive aspects.

This custom approach changed in March 2020 when all face-to-face teaching was suspended because of the COVID-19 pandemic. While recording of all synchronous online sessions initially became the norm, this changed as the University moved from crisis response to business recovery prior to the start of the 2020–21 academic year. This shift from a reactive to a more proactive approach highlighted further managerial complications that required agile and adaptable responses across both policy and practice.

This chapter explores the management and operational considerations in respect of lecture capture during this period. Approaches to addressing emerging challenges are explored in the light of the learning and teaching framework at Northampton, the lived experiences of our staff and, by implication, our

students. Adoption of a management perspective enables identification of best practice and seeks to inform contextual decision-making at other institutions.

APPROACHES TO LECTURE CAPTURE

In recent years, technological advances have transformed practices around the recording of lectures. What used to be the domain of those few students privileged enough to own a Dictaphone which they sat on the front tier of the lecture theatre, has turned into a service that Universities are 'expected' to provide – along with expert teaching and extensive 24/7 access to library resources. In 2016, 71% of institutions responding to the University and Colleges Information Systems Association (UCISA) technology-enhanced learning survey supported such a system (Walker et al., 2017). By 2018, lecture capture tools were the sixth most popular centrally supported technology-enhanced learning tools, a rise of four places (UCISA, 2018).

Two main institutional approaches to lecture capture prevail. The first is where responsibility for the creation and management of the recording sits with the individual tutor. The lecture recording software is typically installed on a fixed PC attached to the lectern at the front of the lecture theatre and the tutor is expected to set it up, and press record when they are ready to go. On completion of the lecture, they stop the recording, which is then processed and uploaded to a storage centre, typically in the cloud. The file then remains there until the tutor accesses it, edits it if necessary and they have sufficient time and digital skills, and installs a link to the recording in the Virtual Learning Environment (VLE).

The second approach is where the technical infrastructure at the institution enables recording to happen automatically, triggered by data from timetabling systems. At the start of the hour, recording in the specified lecture theatres starts and then ceases an hour later, or at the timetabled end of the session. The recording is then automatically processed ready for tutors to install a link within the VLE.

Both approaches have their advantages and disadvantages. In a set-up where responsibility for recording sits with individual tutors, they have control over what they record and when they do it. They can pause the recording should sensitive or confidential material be discussed or when interactive sessions mean that the experience for subsequent viewers is of limited pedagogic value. To be successful, investment in the digital upskilling of teaching staff is often required to familiarise them with all aspects of the software and the recording process. A responsive support team is also needed to address technical issues that arise, moving between lecture theatres as needed. Situating responsibility for making recordings in this way with individual academic tutors can feel unsettling. Staff risk feeling embarrassed in front of their students when they

'can't get the technology to work' and may also lose valuable teaching time, which can result in a negative impact on the student experience and lower satisfaction ratings from those students. Students can also apply pressure on staff to record or not record, depending on their preferences about being recorded, making it harder for tutors to determine a clear course of action if there is no unanimity from students.

Auto-recording can, in the light of those challenges, seem preferable. The tutor has no real need to think about recording, no need to remember to press the right buttons at the right time and then remember to upload the recording to the VLE. Once staff are used to the fact that recording will be taking place, their responsibilities are largely limited to checking the quality of the recording, chopping off the start and end when everyone is arriving or leaving and perhaps editing out any interactive elements that are of limited pedagogic value to viewers.

Technically, at least three systems are required to integrate effectively for this to work: timetabling software needs to be integrated with the recording software to determine when recording needs to occur, in which rooms and for how long. Once created, a link to the video needs to either be auto-installed into the VLE – a separate integration, or it needs to be sent to the tutor for a manual upload.

Nordmann and McGeorge (2018) identify several studies that have explored the pedagogic value to lecture capture. First, students can catch up on sessions that they may have missed. Students who are studying in a language that is not their native tongue, or those with additional support needs, can (re-)watch lectures, or parts of lectures as many times as necessary to understand liminal concepts and supplement their learning (MacKay, 2020; Witthaus & Robinson, 2015). Moreover, they can do this at a time and place to suit. Recordings are also useful to consolidate learning for all students – whether immediately after the synchronous session or in preparation for assessment.

Pedagogically however, not all academic staff are happy with lecture capture (Nordmann & McGeorge, 2018). Concerns around reduced attendance and engagement from students who choose to watch the recordings instead have prevailed (Holbrook & Dupont, 2009; Traphagan et al., 2010), often despite evidence to the contrary (Aldamen et al., 2015; Havergal, 2015). Sitting through a recording of other people learning is not always a valuable pedagogic experience and support to sift the wheat from the chaff can be needed if viewers are to find lengthy recordings of live lectures valuable. Research at the University of Northampton has identified that shorter, focused recordings that focus on core learning, are aligned to assessments and can be repurposed are more beneficial (Rice & Farmer, 2016). Evaluations of the benefits of lecture capture on student learning outcomes are unclear with most institutional

evaluations of this form of technology-enhanced learning focusing on student satisfaction and usage instead (Walker et al., 2017).

LECTURE CAPTURE AT THE UNIVERSITY OF NORTHAMPTON

The University of Northampton is not alone in adopting a more contextual approach to lecture capture (Nordmann & McGeorge, 2018). The pedagogic shift to Active Blended Learning was well underway by the 2014–15 academic year and academic staff were beginning to seriously consider how to transform their classroom practice by reducing the reliance upon transmission-style lectures and ensuring increased interactivity in both the real-time and asynchronous learning environments. Given this direction of travel, formalising and mandating an institutional approach to lecture capture was not on the agenda. This changed in June 2015, when the Students' Union included a request for lecture capture in its Written Submission to the Quality Assurance Agency (QAA) as part of the University's Higher Education Review scheduled for later that year. Alongside a request for increased publicity for the video recording technology in use at the time, the University was asked to 'create a policy around lecture capture' and for this to be included in development plans for the University's new Waterside campus. In short, the request was for lecture capture to shift from being an exceptional practice, to becoming the norm.

Back in 2009, the University's Learning Technology team had observed a growth in the use of video recordings by tutors to support student learning. Alongside this, and as part of their horizon-scanning and future-proofing remit, the team had also identified the advantage of recording live teaching sessions to enhance the student learning experience. Control and consistency in terms of tools and approach was achieved through the introduction of two video-related products: Panopto was used to capture live teaching sessions and Kaltura was used to stream videos for use in asynchronous or independent learning activities. Once Kaltura introduced their own live capture functionality, this became the only solution as Kaltura were able to offer a wide variety of lecture capture scenarios which aligned to the longer-term vision for the institution and the move to ABL.

In recognising that learning only becomes meaningful when it is internalised (Scott, 2007), ABL engages students more actively in the learning process and maximises the occasions and environments in which learning occurs (Armellini, 2019, University of Northampton n.d.). Shifting to ABL involves a complementary and intentional move away from didactic, broadcast lectures as a significant feature of the face-to-face learning experience. In this context therefore, the Students' Union request to normalise lecture capture could not be met with a straightforward response. A period of consultation

with academic, IT and other professional services colleagues identified three key questions: (1) in principle, what were the arguments in favour of and in opposition to the request to introduce a policy of automatic lecture capture; (2) from an operational perspective, what issues might such a policy produce; and (3) what implications would such a policy have on our (current and future) IT infrastructure?

While the University was keen to adopt an institutionally flexible and responsive approach to the request, any response needed to be compatible with the drive for pedagogical flexibility (Barnett, 2014) that sat at the heart of the University strategy (University of Northampton, 2015). Following the consultation, a Lecture Capture Policy that adopted a priority-based, hybrid approach was developed in a University where 'transmission' lectures are relatively rare. First and foremost, staff were encouraged to create custom-made audio/video recordings that concentrate on the core concepts, are aligned to assessments and capable of being appropriately repurposed and reused as part of a blended approach. Where it was not possible to create a custom-recording, bearing in mind that the redesign for ABL was taking place alongside the normal teaching workload and would occur over a period of a few years, staff were asked to capture live broadcast sessions.

Limitations were put on what should be recorded. Only audio capture was required, although screen capture of slides was expected where appropriate. Only pure 'broadcast' elements were to be recorded and staff were expected to either pause the live recording for interactive elements or edit them out afterwards. By only recording broadcast elements, the need for prior agreement or consent for student contributions to be recorded, or removed afterwards, was sidestepped. The policy also made it clear that the introduction of a more formal approach to lecture capture was not intended to replace physical attendance at timetabled sessions. In addition to not recording interactive sessions, the discussion of confidential or sensitive issues were excluded. Responsibility for the storage, retention and removal of recordings was situated with the Learning Technology team as institutional 'owners' of the software.

This nuanced approach meant that under normal circumstances, lecture capture software would primarily be used in asynchronous contexts as part of creating content and situating it as part of deeper learning activities designed to help students make sense of their learning and completed in preparation for synchronous sessions (Armellini, 2020). The real-time sessions were often seen as an opportunity to engage in more constructive dialogue with students, focus on analysis, discussion and application of theoretical learning to practice. The idea of just recording the whole session (including student contributions) was not seen as being appropriate. For Northampton this reinforced the idea that ABL would not always include the traditional lecture. Recordings which

were created were used to support delivery but were not always the prime way to engage with students.

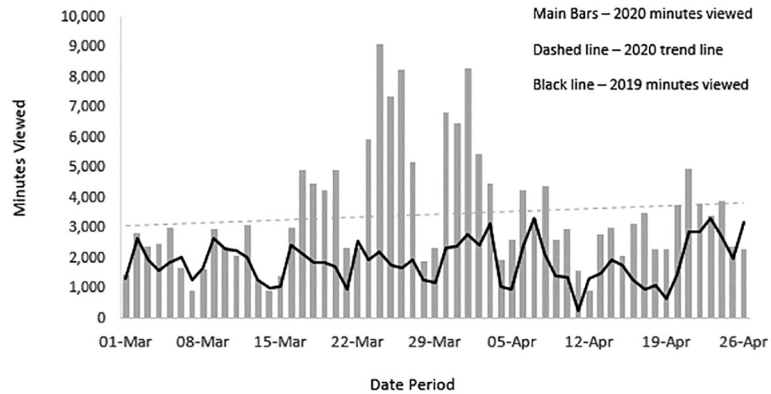
THE IMPACT OF CORONAVIRUS (COVID-19)

Prior to the imposition of a nationwide lockdown by the UK government on Monday 23 March 2020, the University had already taken the decision to suspend face-to-face teaching from 5pm on Friday 20 March. A Critical Incident Group was quickly convened with a remit to address the immediate challenges arising from the suspension of on-campus teaching, identify issues likely to arise in the short-term and plan for a return to normality in due course. The over-arching goal for the group was to provide an excellent student experience and educational provision, which met needs of students, work and society, and allowed all students to fulfil their potential.

In early April that year, one of the first decisions to emerge from the group in fulfilment of this remit was to 'strongly recommend' that all sessions using the Blackboard Collaborate synchronous webinar technology as a replacement for their face-to-face sessions with students would normally be recorded and the recording made available in the appropriate module site on the virtual learning environment (University of Northampton, 2020a).

As a result, two different pieces of software were now available for use. Blackboard Collaborate was used to facilitate and record synchronous webinars which were then stored on the Kaltura video storage and sharing platform. Custom-produced recordings were also stored on Kaltura meaning that all recordings would therefore be available via the one platform for subsequent asynchronous viewing. Production and sharing of the recordings via the University virtual learning environment was deemed to fall under the 'fair usage/public interest' provisions of GDPR and tutors would make it clear to their student participants where the recording could be accessed.

Ongoing and timely monitoring of how students were engaging following the shift to emergency remote teaching was key to shaping future management decisions. Weekly visual representations showing student use across different core technologies were provided. Figure 1 shows how the use of the Kaltura software increased by 60% in the first week that teaching was suspended (source: Kaltura Media Centre). Figure 2 shows how the number of Collaborate sessions grew from around 50 to over 1000 per day (a 1900% increase) Both figures reflect the drop-in activity over the Easter break (6–17 April 2020) and then the rapid growth as term started again.



Source: Kaltura Media Centre.

Figure 1 *Minutes of student time spent watching videos stored in the Kaltura Media Centre before and at the start of the pandemic (March–April 2020)*

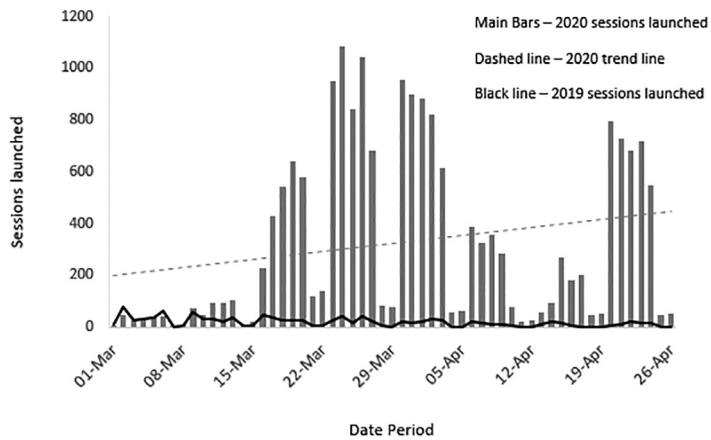


Figure 2 *Number of Blackboard Collaborate sessions launched before and at the start of the pandemic (March–April 2020)*

The longer-term figures from March to December 2020 reflect ongoing usage which was significantly higher than the same period for the previous year for both systems (Figure 3 – Kaltura and Figure 4 – Blackboard Collaborate).

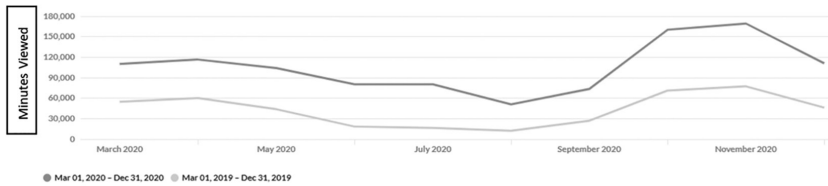


Figure 3 *Kaltura minutes viewed (1 March 2020–31 December 2020)*

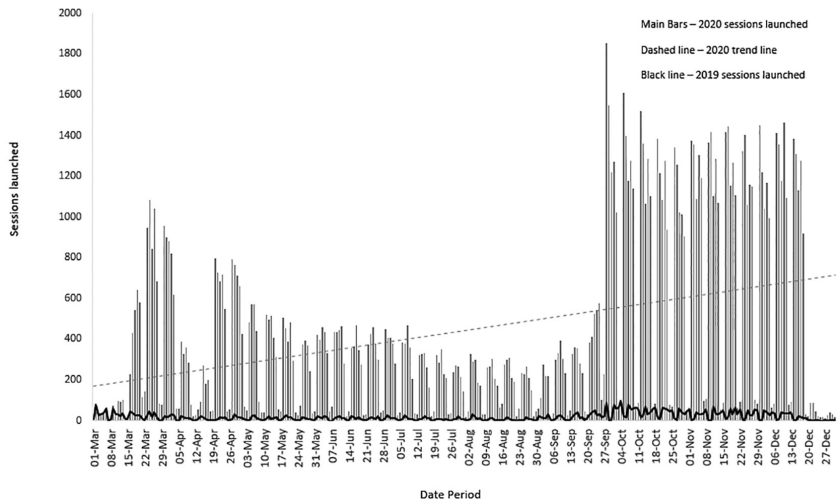


Figure 4 *Number of Collaborate sessions launched at the start of the pandemic until the end of December 2020*

Figures 1 to 4 could be interpreted as suggesting that there was a seam-less and instantly successful move from face-to-face to online teaching and learning. In many respects, this has been true, helped in huge part by the considerable work in the previous five or so years to move to an ABL pedagogy (Maxwell, 2020). The University invested significantly over this period in the digital and pedagogic upskilling of its academic workforce in preparation for facilitating learning in more interactive and engaging ways. Extensive staff development opportunities enabled shifts in pedagogic practice rather than replication of broadcast, didactic lectures delivered through technological means. Technology was positioned as a facilitator of learning, with additional investment in the technological infrastructure of the new campus. Substantive academic staff were issued with high-specification laptops with access to powerful cloud-based technologies and collaborative software pack-

ages that facilitated interactive teaching experiences. Activity-based working (Veldhoen, 2004) through intelligent building design, and reconfigurable teaching, working and meeting spaces became the norm for most staff.

The shifts for teaching colleagues were complemented by investment to support students to learn in a more active and blended manner. The introduction of a student laptop benefit package in 2018 for students on standard three-year undergraduate programmes, financed by Access and Participation fee income, helped mitigate some of the digital inequalities around mobile devices and flexible learning for our students identified through annual digital surveys. An average of 65% of students selected the laptop offer in the first three years of operation meaning that over 1500 laptops were issued each year and the scheme has since been extended to students on four-year programmes.

These sizable transformations – practical, pedagogical, operational and technological – normalised agile and flexible working at the University of Northampton, culminating in the University's wholesale move to its new, digitally rich Waterside Campus in September 2018, built to foreground the student learning experience. Theoretically then, the University was in a strong position to continue to facilitate learning opportunities for students when face-to-face teaching was suspended from 5pm on 20 March 2020 (University of Northampton, 2020b).

However, within a couple of weeks of the start of the pandemic, the first reports that some students were struggling to access remote learning started to emerge. A range of contributing factors were identified: not all students had a dedicated 'home office' in which to work; access to the internet or to a mobile device was neither guaranteed nor consistent and, despite the considerable work to upskill both staff and students, there were clear gaps in various digital literacies. Students with pre-existing additional needs were facing additional complexities caused by learning remotely and the mental health impact of lockdown on everyone was unknown and unpredictable. These findings were not unique to Northampton. An Insights Survey by the National Union of Students reported that over a quarter of students were unable to access online learning during the first lockdown (National Union of Students, 2020). Access to laptops aside, similar issues were being experienced by members of the academic staff body. The Critical Incident Group reviewed the situations faced by staff and students and targeted additional resources to further support these new ways of working triggered by the pandemic. This included a staff support hub; reminders to complete display screen equipment assessments within the home working environment – and flag the need for support; sharing of support techniques and ways to survive and thrive during the pandemic; changes to academic policies to cater for personal situations and improved loan schemes for equipment where possible.

Planning for the return to on-campus teaching at the start of the 2020–21 academic year actively marked the shift from crisis response to business recovery for the University. As part of the shift, the University agreed a return to the priority-based approach to lecture capture outlined in the original policy and a removal of the requirement to record *all* synchronous sessions. However, further changes were required. While some staff were sharing stories of students explicitly refusing to engage if their sessions were being recorded, others shared strong opinions to the contrary. Their students were unhappy that sessions would no longer be recorded as a matter of course. As the staff members charged with reaching and implementing a solution, the authors responded with the creation of a more flexible approach, detailed below, that enabled staff to determine what type of recording would be of most pedagogic value to their students.

IMPLICATIONS TO CONSIDER WHEN RECORDING SYNCHRONOUS SESSIONS

Rather than adopt a descriptive approach to how the lecture capture situation at the University of Northampton unfolded during the pandemic, this section highlights management considerations that arose and were addressed within the Northampton context. Examples are provided to explain, enhance or illustrate.

Notable considerations during the initial crisis phase were triggered by the suspension of face-to-face teaching. It was unclear how people would interact with the University and with their learning so it was important to ensure maximum flexibility. Core considerations include:

- **Base the decision on whether to record on pedagogic needs, determined by individual staff**: The current position at Northampton protects the right of academic staff to determine whether recording is required and if so, in what format. Three main options exist with decisions based on format of the session, the subject matter and student preferences:
  - **Custom-produced recordings** that are short, succinct and support core learning through alignment to assessments provide optimum pedagogic value. These recordings could also be reused and repurposed as part of cohesive, interactive learning activities within the ABL framework.
  - **Live recording of one-way transmission elements** works where pre-produced custom-recordings do not exist. In these cases, staff are encouraged to organise their synchronous sessions to enable part of the live event to function as a lecture suitable for recording. The recording would cover core learning and could then be stopped to allow for greater interaction with students.

    - **Recording the entire session – including student interaction** occurs where staff consider this the most appropriate way to support the student learning experience. In these situations, it is worth providing clear guidance to staff on how to do this safely and legally. The guidance at Northampton sought to ensure implementation of a consistent approach that adhered to legal and ethical guidelines, including GDPR.
- **Maximising the pedagogic value of recordings**: Encourage staff to reflect on all the implications arising from their chosen approach to recording. For example, while recording the entirety of a live interactive session may seem easier and quicker in the short-term, will non-participants in the live session really take the time to watch lots of their peers having group discussions that are hard to hear? Will they be able to easily extract the core learning from any discussions? Would it be more beneficial – both pedagogically for non-participants and from a workload perspective for staff, to simply record a short summary of the live session, highlighting core learning and signposting students to follow-up activities and resources?
- **Focus staff development around upskilling**: Support for staff to produce good quality educational videos already existed at Northampton as a result of the introduction of active blended learning (Rice & Farmer, 2016; LearnTech Northampton, 2016). Support for staff to use readily available tools was provided, in recognition of the fact that the production of high-quality videos is not cost effective given the sheer volume of recordings being produced on a weekly basis.

  Further upskilling work involved activities to enhance and share good practice with the return to campus in September 2020. The University of Northampton offered a minimum of two hours per programme on campus, with additional hours for programmes where this was deemed appropriate. As expected, not all students attended the on-campus sessions so a hyflex approach where students were taught online and face-to-face simultaneously was introduced. Given the financial challenges faced across the sector resulting from the pandemic, this had to be facilitated with minimal additional purchase. Staff relied upon the inbuilt laptop microphones and cloud-software capabilities – including wireless broadcast to large screens in teaching classrooms – to provide the technological capability to teach to the two student groups.
- **Use University-approved software**: While a variety of different software options and mobile applications exist for synchronous video calls, Universities procure specialist software for valuable reasons. Chief among these is storage and security. For example, Zoom was being freely discussed as being quick, easy to use, and more stable than other platforms, yet the University of Northampton made clear via an all-staff communication that Zoom was not an approved platform at that time given the

highly publicised security breaches it was experiencing (Wakefield, 2020). These were addressed by Zoom later in the year, but this incident gave the University the opportunity to reflect and promote software which it already had licensed. Equally, while the University had access to Microsoft Teams, it had not been introduced for learning and teaching purposes and staff were encouraged to stick to the educational software options instead.

- **Continue to meet accessibility requirements**: Even in a crisis of the scale of the Coronavirus pandemic, Higher Education Institutions (HEIs) remain obliged to ensure that the needs of all students are suitably addressed in line with legislative requirements. This includes provision of alternative formats for all resources so that even users without declared disabilities can access them in a preferred format. One unforeseen consequence of reverting to the original lecture capture approach where all sessions were no longer required to be recorded was the fact that there were insufficient scribes within our disability support team to attend all live sessions for all students where this was an approved adjustment. In this situation, recordings were invaluable. Recognition of this issue resulted in amendments to the guidance to say that where an approved adjustment involved the use of a scribe, it would be necessary to record the session so that the scribing team could manage the resulting workload.
- **Use auto-captioning effectively**: While auto-captioning has taken some of the time and cost out of this alternative format, it is not perfect. Provision of a dedicated resource to undertake captioning work, or outsourcing is costly. This is where shorter custom-made recordings are preferable. Staff have usually planned the content more carefully and are likely to have a transcript or accompanying notes that they can upload as an alternative format. If not, creating captions or editing auto-captions is easier the shorter the video.

  Encourage staff to test out the accuracy of the captioning functionality for their own recordings prior to relying upon it to provide a suitable alternative. Speaking slowly and enunciating words clearly helps, but challenges may remain with different accents or where someone is presenting in a non-native language.

  Northampton also promoted self-service solutions such as the Google Chrome Live Captioning tool to enable live captioning within Blackboard Collaborate. Commercially available video platforms like YouTube™ will, by law, auto-create closed captions but checking for accuracy is still advised to meet the minimum Web Content Accessibility Guidelines (WCAG) AA standard.
- **Determine how to manage student interactions**: Recording someone without their agreement is both unethical and prone to all sorts of legal implications. Obtaining consent to be recorded and then being able to

manage and respond to any subsequent removal of consent is not straightforward, hence the approach in the initial Lecture Capture policy to record only the staff voice. However, where staff and students were advocating for recording of the full session, interactive or otherwise, an agreement approach is useful. This involves making all participants aware at the outset of the session that it will be recorded and advising them what to do if they do not wish to be recorded. The following slide was therefore developed with the University data protection team and shared with academic colleagues (Figure 5).

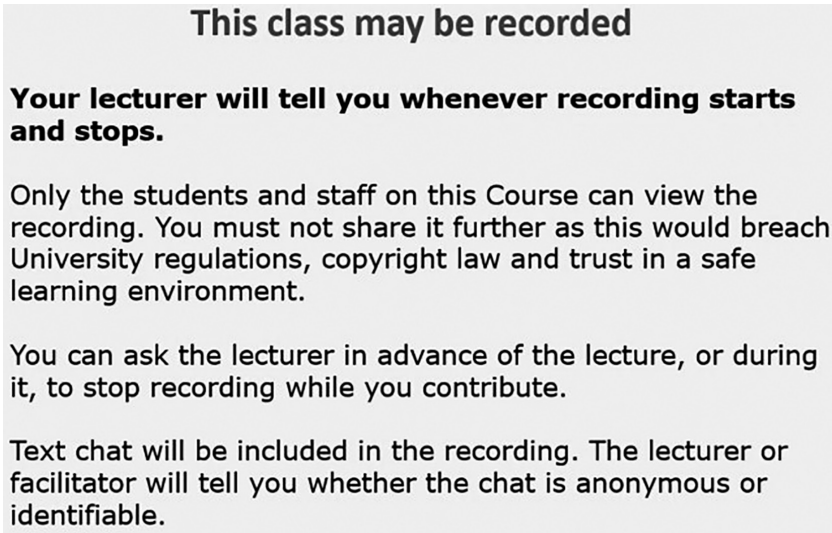


Figure 5 *Standard slide for use when recording interactive synchronous sessions*

The authors are not aware of any further issues arising since the introduction of this approach. Once aware that a student does not agree to be recorded, tutors must either stop the recording for contributions from that student, or allow anonymised comments in the chat window. Alternatively, the student could ask a peer to contribute for them.

- **Plan for increased storage costs**: The changes to the recording policy meant that there was a big increase in the amount of material being stored in both Blackboard Collaborate and in Kaltura. Discussions with suppliers led to additional storage being purchased along with a review of the University archiving polices to ensure that material was being retained for the required time periods.

- **Ensure that students can access the recordings**: Producing a video and sharing it on the virtual learning environment is no use if students cannot technically access the recordings. Some Chinese students who were still resident in China at the start of the new academic year reported difficulties with accessing resources. Through the Jisc General Access Framework (GAF) the University has obtained access to dedicated network connectivity between China and the UK. Rebranded as the 'Northampton China Connect' solution, this has provided a secure internet link to the UK, thereby overcoming externally imposed hurdles. The University continues to review feedback from all students worldwide on the quality of their connection. Whilst solutions have been provided in some cases, the local network infrastructure where the students are based often causes technical difficulties and a limit to the amount of bandwidth which students can access.
- **Share and learn from others' good practice**: Providing opportunities to discuss the challenges with online learning and proactively find solutions are important (Jisc, 2020). Solutions are often not subject-specific. For example, considerations about the advantages and disadvantages of the different software options apply irrespective of subject, as do decisions about the use of breakout rooms and which software is easiest to use in this regard. Other considerations include determining whether you want to encourage cameras to be on or off (recognising that there are often very good reasons why someone would want their camera to be off), or whether the chat function should be public or private, or recorded. Respond to and share good practice around the student experience (Howe, 2020).
- **Consider the wider benefits of recording**: In addition to the specific benefits of lecture capture identified in a number of research studies and listed above, there are some pandemic-specific benefits resulting from a proactive and flexible approach to recording:
    - Ongoing and easy access to recordings helps students continue to engage with their studies at point of need and should help mitigate the risk of increased early withdrawals.
    - Student participation is influenced by multiple factors. These include not having a quiet and dedicated place to study and not wanting their living situation to be viewed by their peers, but may also be culturally influenced.
    - The pandemic delayed or prevented arrival in the UK for some students, delaying enrolments to at least the fifth week of teaching in some cases. Without access to the recordings, their ability to catch-up would be seriously hampered.
    - The additional pressures resulting from the pandemic, whether directly work-related or as a consequence of home-schooling or caring for

others, means that there can be even less time to create custom recordings after a session.

- **Make communications clear, succinct, accessible and actionable for staff and students**: For example, highlight changes to existing practice and resulting implications, with links to additional guidance and policy where required. For example, be clear to students that if recording is taking place, both the video and the chat will be subsequently available. Make your communications actionable. It is also important to be clear about what will be recorded. At Northampton, the expectation is for audio recording. Video remains optional.

CONCLUSION

At the heart of all these actions taken at the University of Northampton in respect of learning, teaching and assessment is a desire to enhance the student learning experience as shown by the introduction of ABL, the building of a new campus designed to co-locate all student resources together and the approach to lecture capture that prioritises the production of recorded lecture snippets over lengthy videos of reduced pedagogic value. As the University tackled the immediate aftermath of lockdown before moving through a business recovery phase and then back into lockdown (at the time of writing), the student experience remained uppermost in all considerations.

Developing an institutionally appropriate approach to lecture capture by understanding how it can complement your learning and teaching model impacts successful use and uptake. Academic colleagues need to understand the advantages and disadvantages of available technologies and use them in pedagogically appropriate and flexible ways. Staff also need to remember that institutions procure these technological solutions based on a lot of research and evaluation activity that takes account of privacy and equality implications to protect both staff and students.

Our data on digital engagement with recorded sessions, whether captured live or pre-recorded, highlights the seamless way in which learning continued online after the introduction of the first lockdown. That the University was able to continue teaching without hiatus was significantly enabled by the work and investments of the previous five years. Yet, as discussed above, the data only tells part of the story. The digital divides and challenges with compulsory home-based teaching and learning still existed for Northampton students and the ability of the institution to address these can only ever be partial. As the pandemic progresses and while lockdowns remain in force, the gaps between student groups continue to widen. Succinct custom-produced, audio-recordings of core learning with minimal use of embedded content can help to keep bandwidth usage to a minimum. But given the desire to maintain

synchronous learning and teaching as far as possible, combined with the additional pressures on academic staff to change their teaching practices and manage the complexities engendered by remote working and the closure of schools, recording of the full session, however interactive, will continue to remain better than nothing.

Looking ahead, it will be important to consider what changes to all aspects of pedagogy rightly could and should be preserved. The impacts on how tutors teach and how students learn are, ten months down the line, significant. Many initial teething problems will have been overcome, solutions identified and implemented and lots of good practice shared. Will a return to the pre-COVID-19 lecture capture policy that favours custom-made pre-recorded videos be appropriate in the future? Will students continue to want interactive sessions recorded if, and when, face-to-face teaching as we know it becomes possible again? These and many other questions remain unanswered and unanswerable at the time of writing. But whatever approach is adopted, addressing the ongoing digital inequalities, particularly given the disproportionate effect these have on certain student groups, must be a priority.

REFERENCES

Aldamen, H., Al-Esmail, R., & Hollindale, J. (2015). Does lecture capturing impact student performance and attendance in an introductory accounting course? *Accounting Education*, *24*(4), 291–317.

Armellini, A. (2019). *Putting learning at the forefront of everything: Active Blended Learning as Northampton's new normal*. Presentation to EUNIS 2019. Trondheim, 7 June 2019.

Armellini, A. (2020). *The journey towards Active Blended Learning: The experience of the University of Northampton* [Paper presentation]. University of Portsmouth TEL Tales Blended Learning Festival https://sites.google.com/port.ac.uk/teltalefestival/home-festival-programme/thursday-16th-july/18-reflections-on-abl?authuser=0 [Accessed 19 July 2021].

Barnett, R. (2014). *Conditions of flexibility: Securing a more responsive higher education system*. York: Higher Education Academy. https://www.advance-he.ac.uk/knowledge-hub/conditions-flexibility-securing-more-responsive-higher-education-system [Accessed 4 December 2020].

Havergal, C. (2015). *Videoing lectures 'has no impact' on attendance, says study*. https://www.timeshighereducation.com/news/videoing-lectures-has-no-impact-attendance-says-study [Accessed 11 December 2020].

Holbrook, J., & Dupont, C. (2009). Profcasts and class attendance – does year in program matter? *Bioscience Education*, 13(June). www.bioscience.heacademy.ac.uk/journal/vol13/beej-13-c2.pdf [Accessed 19 July 2021].

Howe, R.J. (2020). *Student reflections on online learning (groupwork, interactivity and cameras)* [online]. https://blogs.northampton.ac.uk/learntech/2020/11/02/student-reflections-on-online-learning-groupwork-interactivity-and-cameras/ [Accessed 22 January 2021].

Jisc. (2020). *Learning and teaching reimagined: Change and challenge for students, staff and leaders.* https://www.jisc.ac.uk/sites/default/files/ltr-report-change-and-challenge-for-students-staff-and-leaders-aug-2020.pdf [Accessed 22 January 2021].

LearnTech Northampton (2016). A practical guide to Mayer's multimedia principles: How to make effective educational videos. https://www.youtube.com/watch?reload=9&app=desktop&v=m0GMZgaC7gM&feature=youtu.be [Accessed 15 January 2021].

MacKay, J.R. (2020). First year undergraduates make use of recordings to overcome the barriers to higher education: Evidence from a survey. *Research in Learning Technology*, *28*. https://doi.org/10.25304/rlt.v28.2476

Maxwell, R. (2020). Pedagogic transformation at the University of *Northampton* in Agency for Quality Assurance and Accreditation Austria (2020) *Designing study structures flexibly – a challenge for universities and quality assurance: Contributions to the 7th AQ Austria Annual Meeting 2019,* pp. 126–139. https://www.aq.ac.at/de/ueber-uns/publikationen/sonstige-publikationen.php (print version to follow) [Accessed 19 July 2021].

National Union of Students (2020). *Coronavirus and students survey phase II*. https://www.nusconnect.org.uk/resources/covid-19-and-students-survey-report-phase-2-public-version [Accessed 8 January 2021].

Nordmann, E. & McGeorge, P. (2018). *Lecture capture in higher education: Time to learn from the learners*. https://www.researchgate.net/publication/324943672_Lecture_capture_in_higher_education_time_to_learn_from_the_learners [Accessed 11 December 2020].

Rice, P. & Farmer, R. (2016). Educational videos – tell me what you want, what you really, really want. *Journal of Learning Development in Higher Education*, Issue 10, November 2916. https://journal.aldinhe.ac.uk/index.php/jldhe/article/view/297 [Accessed 22 January 2021].

Scott, D. (2007). *Lev Vygotsky and internalisation*. In Scott, D. *Critical essays on major curriculum theorists*. London: Routledge.

Traphagan, T., Kucsera, J. V. & Kishi, K. (2010). Impact of class lecture webcasting on attendance and learning. *Educational Technology Research and Development*, *58*(1), 19–37.

UCISA (2018). Technology enhanced learning survey. https://www.ucisa.ac.uk/Resources/2018/Technology-enhanced-learning-survey [Accessed 22 January 2021].

University of Northampton (n.d.). *How we teach*. https://www.northampton.ac.uk/undergraduate/how-we-teach/ [Accessed 27 November 2020].

University of Northampton (2015). *Transforming Lives + Inspiring Change: Strategic Plan 2015–2020*. Northampton: The University of Northampton. https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwiRtIioqcbtAhWEdN8KHQ7nBeMQFjAAegQIAhAC&url=https%3A%2F%2Fwww.northampton.ac.uk%2Fwp-content%2Fuploads%2F2015%2F10%2FTransforming-Lives-and-Inspiring-Change-Strategic-Plan-2015-2020.pdf&usg=AOvVaw1wh8WixWCxPDwzP-VRtxQL [Accessed 11 December 2020].

University of Northampton (2020a). *Recording collaborate sessions.* https://unify.northampton.ac.uk/Article.aspx?articleid=gGHPpOYriEJRM0O%2B%2BP23nVGA2hU%3D&channelid=45 [Accessed 11 December 2020].

University of Northampton (2020b). *UON coronavirus update: Suspension of face-to-face teaching.* https://www.northampton.ac.uk/news/uon-coronavirus-update-suspension-of-face-to-face-teaching/ [Accessed 11 December 2020].
Veldhoen, E. (2004). *The art of working*. Academic Service.
Wakefield, J. (2020). Zoom boss apologises for security issues and promises fixes. https://www.bbc.co.uk/news/technology-52133349 [Accessed 22 January 2021].
Walker, R., Jenkins, M. & Voce, J. (2017). The rhetoric and reality of technology-enhanced learning developments in UK higher education: Reflections on recent UCISA research findings (2012–2016). *Interactive Learning Environments*, 26(7), 858–868 DOI: 10.1080/10494820.2017.1419497
Witthaus, G. & Robinson, C. (2015). Lecture capture literature review: A review of the literature from 2012 to 2015. Centre for Academic Practice. Loughborough University. http://www.lboro.ac.uk/services/cap/tel/tools/ [Accessed 19 July 2021].