

Digital Strategy for Education

2016-2020

1. Purpose of the Strategy

The purpose of this Strategy is to outline clearly the University's goals and ambitions in harnessing digital technology to support teaching and learning at Cambridge. Whilst the University strongly believes that, in the context of being a residential University, face-to-face interactions such as lecturing, small-group teaching, and supervisions should remain at the heart of the Cambridge education, there is scope for the collegiate University to make greater strides in implementing technology to support and enhance the educational experience. The General Board, as part of the University's Learning and Teaching Strategy 2015-2018, solicited the development of a Digital Strategy to guide this implementation.

This document proposes the adoption of a strategic framework in which the University's ambitions and goals are defined, with objectives identified on a rolling basis as resources and technology maturity permit. The Strategy is supported by an Action Plan, which outlines initiatives to meet each goal, primary stakeholders with responsibility or line of reporting/review, and appropriate timescales for completion. The Action Plan will be reviewed termly by the Digital Teaching and Learning Sub-committee (DTLS), reporting to the General Board's Education Committee and the Information Services Committee.

The Strategy will be reviewed annually by the DTLS and, as necessary, updated in light of technological developments and progress on the Action Plan.

2. Context

This Strategy is based on two key principles:

- i. it will be pedagogically-led, based on the needs of those who teach and those who learn;
- ii. it will support or enhance the educational experience across the collegiate University.

This Strategy supports the University's Learning and Teaching Strategy 2015-2018. The Learning and Teaching Strategy determined that a Digital Strategy for Education should:

- i. be based on the needs of those who teach and of students in their learning;
- ii. recognise that technology offers opportunities to reduce, support, or reallocate resources spent on the teaching of basic material and concepts and giving feedback, and thereby to make teaching and learning more efficient;
- iii. acknowledge that there may be benefit in pursuing different technologies at different stages of learning;
- iv. support the transition from school to University, building on work undertaken in the TranSkills Project;

- v. seek to incentivise academics to reflect on their teaching practice and to think about different ways of teaching and different learning styles;
- vi. take account of the needs of disabled students and the University's objectives for equality and diversity more broadly to ensure an inclusive educational experience;
- vii. increase accessibility of teaching resources within Cambridge, whilst students are studying at Cambridge, are away during vacations, before they matriculate, and for those with disabilities;
- viii. open new opportunities to engage with students;
- ix. make it clear that any proposal for investment in the development of systems or software will clearly state deliverables and associated benefits; specify the means and evidence by which the effectiveness of the technology will be measured; and include costings for development, roll out and maintenance.

This Strategy has been developed collaboratively between the General Board's Education Committee, University Information Services, the Digital Teaching & Learning Sub-committee, the Information Services Committee, and the Cambridge Centre for Teaching and Learning, and is supported by Educational and Student Policy and the Student Registry.

"Digital" in the context of the Digital Strategy for Education primarily indicates interaction (accessing and providing information) through the medium of computerised devices, such as a personal computer, a smartphone, or tablet with computerised networks, and related developments, such as 3D printing or Virtual Reality. This description is not exhaustive, and the University intends a broad and fluid definition of digital technology.

"Teaching" in the context of the Digital Strategy for Education is intended to encompass all elements of the learning experience, rather than taking a narrow definition of lecture or supervision delivery. This should include approaches to instil or encourage the qualities of successful learners, such as engagement, attentiveness, thoughtfulness, exploration and critical thinking. In all cases, the introduction of new technology should demonstratively support or enhance pedagogical aspects of teaching practice, rather than be introduced for its own sake.

3. Strategic Goals

The University's strategic goals for technology to support teaching and learning are:

1. to build and maintain a shared understanding of the needs and priorities of the collegiate University;
2. to support students throughout the learning cycle;
3. to ensure quality and equity of the student experience;
4. to provide maximum effectiveness and efficiency of resource for students, staff, and collegiate University administration;
5. to enable and propagate innovation.

Each of these goals is outlined more clearly below, with associated action points.

GOAL 1: To build and maintain a shared understanding of the needs and priorities of the collegiate University

The collegiate University believes that technology used to support education should demonstrate pedagogic benefit. This benefit will be primarily defined and demonstrated at the local level by academics and their students in particular contexts of teaching, not at the University level, although there will necessarily be lessons that can be shared. The University will provide guidance and advice to define needs and implement possible solutions.

To meet this goal, the University will:

1. Create “Digital Advocates” at the local level, to support the development of teaching and learning technology within each subject area. The Digital Teaching & Learning Sub-committee (DTLS) will create a briefing document to define the role, and if possible seek to appoint Advocates by the end of the Michaelmas Term 2016. Advocates should be able to appropriately evaluate and effect change within their relevant area(s), and due consideration should be given to how they will be recognised and resourced for their work.
2. Create support mechanisms for Digital Advocates. This may take the form of a User Group, with virtual or physical meetings, in which Advocates can share problems and practice, and seek advice from peers, University Information Services (UIS), the DTLS, and the Cambridge Centre for Teaching and Learning (CCTL). Support mechanisms will be developed and overseen by the DTLS, in liaison with UIS.
3. Actively seek to obtain information about current technology used at the local level. UIS will, through the Digital Advocates, seek to form a picture of current usage and needs to support all types of teaching. This will include appropriate liaison with Faculties, Departments and Colleges.
4. Create a mechanism within which evidence of pedagogical benefit – whether internal or external to Cambridge – can be reviewed and disseminated for potential applicability within the Cambridge context. This will be done primarily through the CCTL and the DTLS, with support from UIS.
5. Liaise with the Cambridge University Students’ Union (CUSU) and the Graduate Union, in collaboration with the CCTL, to consult with students about their expectations and learning needs, where these are being well met and where there could be improvements. In doing so, UIS will seek to use results of national and local surveys as well as initiating new consultations, and will consider methods of communication with elected student representatives in Departments, Faculties and Schools.

GOAL 2: To support students throughout the learning cycle

Individual learning needs vary between students and at different stages of the student journey. The University should offer support for all stages of learning: from prospective students, through introductory to advanced material, for part-time and full-time students, at

undergraduate, masters and research student level, for non-award-bearing courses, and beyond graduation.

To meet this goal, the University will:

1. Via the Digital Advocates, liaise with Colleges, Faculties and Departments to consider how technology might better support prospective students in understanding what studying at Cambridge might entail. This may link with Widening Participation initiatives offered through the Cambridge Admissions and Graduate Admissions Offices.
2. Consider, in liaison with the CCTL, the ways in which technology can support the transition from school to University and between different levels of University study. Whilst it is acknowledged that need and desired format will vary by subject, pre-sessional or online material accessed outside the traditional face-to-face learning environment could help to prepare students for studying at Cambridge and support them to develop as learners. This type of material may also play a role in the development of part-time, continuing education, and professional practice learners.
3. Consider its policies on archiving of material in Moodle and other systems, to create good practice guidance and to ensure this is clearly communicated to students and to Faculties, Departments, and Colleges. This will be led by UIS, with guidance from the Legal Services Office, the University Library, and Educational and Student Policy.

GOAL 3: To ensure quality and equity of the student experience

The educational experience is unique to each student. The University should develop systems to accommodate and support different learning styles, whilst maintaining equity of provision and the quality of a Cambridge education.

To meet this goal, the University will:

1. Strive to provide access to appropriate resources at all times, whether in or out of Cambridge. Cambridge terms are intensive, and students are seeking increased access to resources; not only reading materials but access to email, Moodle, and administrative guidance. UIS will work with the University Library, College Libraries, and Digital Advocates to review and optimise access arrangements across all systems. In doing so, consideration will be given to the University's legal responsibilities with regard to copyright restrictions, and reporting/monitoring requirements. These responsibilities will be clearly outlined to users and will be accompanied by robust mechanisms to demonstrate compliance with reporting requirements.
2. Strive to ensure that existing and developing technologies address accessibility issues for disabled students. The University recognises the opportunities offered by technology to assist disabled students in accessing educational provision. In addition to exploring and maximising these opportunities, UIS, working with the Disability Resource Centre, will provide advice to ensure existing technologies are compatible with common adjustments for disabled students. New technologies will address accessibility issues during the pilot stage.

3. Undertake a pilot project on the use of computerised examinations. The University recognises that, after producing work electronically throughout the majority of their studies, handwritten examinations are increasingly difficult for students to manage, and scripts are increasingly difficult for examiners to read. The pilot project will primarily encompass the implementation of typed examination scripts, but may also include consideration of infrastructure and best practice for electronic submission, marking and feedback of assessed coursework.
4. Strive to ensure that the student experience is not affected by access, cost or information literacy issues in the introduction of new technologies. Students will arrive with, and develop during study, varying levels of digital literacy. The University will seek to ensure students are able to access appropriate training to make best and appropriate use of technologies used in the learning environment. In developing and implementing new technology, UIS will provide guidance on training and access needs, to ensure that these issues are considered at all stages. The collegiate University will keep under continual review possible barriers to access of relevant digital technologies, and respond appropriately.

GOAL 4: To provide maximum effectiveness and efficiency of resource for students, staff, and collegiate University administration

Time is a limiting factor for staff and students. Cambridge terms are short and intense, and lack of time is a constraint on both student engagement and developing innovative approaches to teaching. Technology can play a key role in rationalising workload, and streamlining administrative and operational processes. Additionally, whilst pedagogical benefit is rightly defined at the local level, providing a University infrastructure can support local development and help to spread good ideas. Providing maximum effectiveness of resource – whether that resource is financial, physical, or personal – will support students and staff in achieving their educational goals.

To meet this goal, the University will:

1. Maximise the benefits to be gained from centrally-supported systems, such as (but not limited to) Moodle, CamSIS, Timetable, Qualtrics. This may include raising awareness of what is available, increasing system integration, or creating good practice guides, and will be the joint responsibility of UIS and the CCTL, working with the Digital Advocates where appropriate.
2. Ensure that University work is underpinned, as appropriate, by the most up-to-date and innovative methodologies and technologies. This will encompass all aspects of University business, including teaching and learning, administration and examinations, in line with development of the wider University Information Services Strategy. UIS will engage with all areas of the collegiate University to highlight developing technologies and will be proactive in suggesting opportunities or pilot projects.
3. Provide a 'menu' of possible solutions to meet academic need. This will link to the development of the University Information Services Catalogue, and will be provided by UIS, in liaison with the CCTL. The menu will clearly demonstrate the possible

problem encountered by staff or students, potential technological solutions, and how these solutions might address the problem. Case studies will be developed to help demonstrate benefit within the Cambridge context.

4. Consider the University's operational infrastructure and continually review where changes may support practical or day-to-day operational activities. Whilst there is no desire to implement a wholly top-down approach, it is recognised that some local problems may be more easily addressed with a University-wide infrastructure. UIS will keep existing "enabler" technology under review, in line with development of the wider University Information Services Strategy. The DTLS will provide input and guidance in the identification, consultation, and implementation of any appropriate top-down developments.
5. Review the examination process from start to finish, with a view to increasing operational efficiency. This review will be undertaken jointly by UIS and the Board of Examinations, and may lead to the introduction of pilot projects around the timetabling of examinations, access to examination venues and co-ordination between venues, recording student attendance centrally and in College, production and archiving of examination papers, typing of examinations, and recording of marks.
6. Undertake a pilot project on digital lecture capture. This pilot will take place during 2016-17 with a small number of departments, with the aim of evaluating the usefulness of lecture capture to support teaching, learning and revision more effectively. The project should include the use of learning analytics to inform development of teaching and supervisory practice. Whilst not intended to be the primary function of the pilot, the project should also explore potential for lecture capture to support the development of 'flipped classroom' models, particularly with respect to prior reading of introductory material or preparation for practicals. The pilot should lead to case studies which can be used to inform consideration of lecture capture across the wider University.
7. Support Faculties and Departments in moving towards reducing or removing paper copies of handouts, where desirable. Whilst it is recognised that a wholly digital format may not be appropriate in all subjects and for all students, the University believes in supporting sustainability at all levels. CCTL and the DTLS, with input from UIS, will create good practice guidelines for the production of digital handouts, and support Faculties and Departments to reduce paper consumption. In doing so, due consideration will be given to the needs of disabled students and the appropriate use of handouts to support learning in a digital environment.

GOAL 5: To enable and propagate innovation

Because the University believes that pedagogical benefit is best defined and demonstrated at the local level by academics and their students, most innovation will occur at the local level. As with the development of Goal 2, whilst there is no desire for a wholly top-down approach, the University should ensure that it encourages and equips staff to review their teaching and consider innovative methods of using technology. The DTLS will provide input and guidance in the identification, consultation, and implementation of any appropriate top-down developments.

To meet this goal, the University will:

1. Via the CCTL, encourage academics to reflect on their teaching practice and support innovation. This will include continuing to support the Teaching & Learning Innovation Fund (TLIF), an annual fund to drive local innovative approaches; whilst TLIF projects are not required to be technologically-linked, digital projects supported by the TLIF have flourished in recent years and should continue to do so. The DTLS will raise the profile of these projects and will work with UIS to enable wider rollout of successful projects, where appropriate.
2. Develop a clear model for the creation, implementation, and evaluation of pilot projects. In association with Goal 1 above, many pilot projects will be designed and implemented locally, but the central University will have a key role in advising Faculties and Departments in their development. The model will be created jointly by UIS and the CCTL, and will identify clear routes for interested individuals to seek support from both of these bodies. The model will include methods for the costing of projects, for the sharing of ideas, for considering legal or technical limitations, and for evaluation and dissemination of outcomes.
3. Provide infrastructure to support innovation. In association with Goal 2 above and development of the University's Information Services Strategy, UIS will continue to review the provision of operational and standard support to ensure that innovative approaches to using technology in teaching and learning can be implemented quickly and effectively, by any member of staff.
4. Consider the threshold for adoption of new technologies from the local level to the University level. As practice is shared, there may come a point at which a particular hardware or software has sufficient local adopters to benefit from a more University-wide approach. UIS and the DTLS will provide guidance on how this threshold might be determined and acted upon, and will advise the wider collegiate University on challenges and resource implications.

Digital Teaching & Learning Sub-committee

May 2016

Relevant Committees

General Board's Education Committee (GBEC): The principal committee within the University responsible for educational matters.

Information Services Committee (ISC): This committee is responsible for oversight of strategic information services and staffing requirements to support University business.

Digital Teaching & Learning Sub-committee (DTLS): A sub-committee of GBEC and the ISC, this committee is responsible for development and implementation of the Digital Strategy.

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