“Teaching and learning have taken on a new look in the 21st century, courtesy of the ubiquitous use of digital technology. This historic transformation has led the University of Hong Kong to initiate an e-learning strategy in sync with the culture of the digital generation. As always, HKU is eager to adopt the latest in technology and techniques in order to deliver the most valuable education to its students.

e-learning is already part of the HKU curriculum, and its role in students’ learning journey is growing rapidly.”

Professor Ian Holliday
Vice-President & Pro-Vice-Chancellor (Teaching and Learning)
"This was such a great course to be part of. I loved the animation that was used. I feel like I learned a lot more about the ancient Chinese philosophers. Thank you for bringing this course to us all over the world!"

A student in the MOOC “Humanity and Nature in Chinese Thought”
NEW IMPETUS

2015 was an eventful year for e-learning at HKU. We launched four massive open online courses (MOOCs), web-based courses that anyone with an internet connection can enroll in for free. We have used the feedback from enrollees to improve our educational management systems. Our teachers have introduced trailblazing innovations in e-learning. We have shared our digital experiences with universities and organisations in Hong Kong and abroad.
Achievements in 2015

Renewed the University’s E-learning Strategy for implementing new digital learning models.

Launched 4 MOOCs reaching learners from 183 countries as widely separated as the United States, China and India. Some courses made use of innovations such as online debate and storytelling with animation.

MOOCs delivered in 2015 include:

**The Search for Vernacular Architecture of Asia**  
Faculty of Architecture

**Humanity and Nature in Chinese Thought**  
Faculty of Arts

**Epidemics**  
Li Ka Shing Faculty of Medicine

**Making Sense of News**  
Journalism and Media Studies Centre

Identified outstanding practitioners of such e-learning methods as “flipped classrooms” so as to share their experiences and successes with the wider university community through short videos, write-ups and seminars.

Established e-learning links with local, regional and international universities such as MIT, UC Berkeley and University College Dublin. HKU also initiated an inaugural forum on e-learning policy issues for prominent Asian universities including the National University of Singapore, Peking University, National Taiwan University and Kyoto University.
Upcoming

Additional MOOCs in development and will be made available. These include:

**Hong Kong Cinema through a Global Lens**  
Faculty of Arts

**Law, Economy and Society**  
Faculty of Business and Economics

**Introduction to Dinosaur Ecosystems**  
Faculty of Science

**Data Journalism**  
Journalism and Media Studies Centre

Several smaller scale private online courses will be developed from on-campus classes to provide students with a mix of teaching methods. These include:

**Critical Reading of Popular Culture**  
Faculty of Education

**Steel Structures**  
Faculty of Engineering

**The Science of Crime Investigation**  
Li Ka Shing Faculty of Medicine

**Journey into Madness: Conceptions of Mental Health and Mental Illness**  
Faculty of Social Sciences

Development will continue on the first game for learning purposes to be made available as a mobile device app at HKU.

The University is collaborating with technology industry leaders to bring students closer to real-world problems and settings.

Partnerships with other universities are being built to develop courses and identify opportunities for intercultural learning.

Data generated by MOOCs and other e-learning experiences is being studied to improve course design and promote the inclusion of educational technologies.

**Targets for 2019**

Enlarging the HKU e-learning network through MOOCs

Increasing the percentage of “active learners,” those who follow an online course through to its completion

All HKU faculties to have integrated e-learning into their regular curricula
MOOC in the spotlight: Introduction to Dinosaur Ecosystems

How do we know what environments and climates dinosaurs lived in, what animals and plants they shared their habitats with, and the relationships between dinosaurs and their ecosystems? Students in this course will virtually visit Erlian, Inner Mongolia, and other leading museums to find out how paleontologists answer these questions. This course will be available in the latter part of 2016, and will be led by Dr Michael Pittman, a paleontologist at HKU specialising in dinosaurs, in collaboration with Professor Xu Xing of the Institute of Vertebrate Paleontology and Paleoanthropology, Beijing.

In the MOOC, Professor Xu Xing will "virtually" excavate dinosaur fossils with the students (Dr Pei Rui in the distance).
“One of the best things about this class is that you have to learn to juggle different opinions on the spot... and you also have to learn how to express your own opinions in the best way possible.”

Law student interviewed on her experience after a “flipped” session

History and prestige have always added value to an HKU education, but experimentation and adaptation of the latest technologies and techniques are necessary if the university is to maintain its position and relevance. Offering MOOCs has been only part of the story.

Giving it a Whirl: Flipping a Lecture into an Engaging Discussion

Award-winning professor Rick Glofcheski “flipped” his tort law class of 260 students by doing away with lectures. Instead, teaching content in the form of short videos is given to the students before class. Students are expected to watch the videos to prepare themselves for active discussion in class.

Once in class, students are seated in groups of five. They participate in a poll using their mobile devices to check their understanding of key legal concepts, and analyse news articles as if they were analysing a live legal case. The discussions are completely student-led, with tutors observing and occasionally supplementing the students’ ideas. The feedback from students has been consistently positive: instead of simply listening to a lecturer, as in a normal tutorial, they say they have gained real insights into each others’ thinking processes.
Dr Masato Kajimoto of the Journalism and Media Studies Centre repurposed videos from his “Making Sense of News” MOOC for five of the 13 lectures in his on-campus course. In the process, Dr Kajimoto said he came to realize how repetitive in-class lectures could be, and how time in class could be better spent. He incorporated ideas and examples submitted by his MOOC students into his on-campus teaching materials, facilitating inter-cultural learning. The semester-end student survey showed that students enjoyed the blended mode of learning. One student said that concepts “were easier to understand because of the concise descriptions from the videos.” Over 76% of his students indicated that the online lectures enabled them to better manage their study time and facilitated their preparation for the tutorial discussions and exercises.

Scaling up: Interprofessional Learning for Healthcare Professional Students

How do teachers effectively manage a class with more than 500 students? Dr Lap Ki-Chan from the School of Biomedical Sciences recently took up this challenge in a project involving students from a dozen of medical programmes at HKU and the Hong Kong Polytechnic University. The students work in teams and learn how the various medical specialities can be combined to resolve individual cases. The Learning Activity Management System (LAMS) played an important role in classroom management for such a large number of students. LAMS, a software programme designed to support collaborative learning, provides instant statistics that help instructors check the progress of individuals and teams. The system also comes with an online discussion forum that provides a natural follow-up to face-to-face sessions. The programme is growing, and is expected to serve about 1,000 students by 2017. This will be the first large-scale interprofessional education programme in Hong Kong.

Learning through videos is being enhanced by sophisticated panoramic photography, and virtual reality hardware and software. The show-reel below will give you a sense of what educational videos can be and where they can take you.

TELI Show-reel
https://youtu.be/v_Q_KUEf5Oo
What are the problems that e-learning is trying to address? The growing number of disengaged participants in our educational system, perhaps. Skipping class is common, lecturers say. Some students feel that a lecture is just a set of presentation slides.
The research goals for e-learning are ambitious, and directly address the question of how active learning happens. Topics that HKU is currently examining include the science of learning, instructional design, learning-management system development, management of educational data and resources, and approaches to teaching practices. Our cross-discipline project on online courses focuses on the Common Core Curriculum (general studies) and brings students, teachers and researchers from different backgrounds together to explore topics such as learning design, and the impact of social interactions in knowledge creation. The research findings will be used to improve on-campus teaching.

The mining of large amounts of data on our learning management systems, combined with mathematical analysis, enables teachers to keep an eye on progress and to diagnose problems. Such data also offer our educators insights into how to deliver a targeted learning experience. Down the line, powerful data sets accumulated over the years will help us determine what works best for our students, and what their learning pathways are. This is very useful as our student population is becoming increasingly international.

Mobile learning is among our mid-term goals. Not only are we helping teachers to make sure that their course websites are mobile-friendly, we are also working with students on apps that facilitate class selection and job searching. For those of our readers who are glued to games, the good news is that HKU is researching and experimenting with ways of incorporating game elements into the process of learning.
The university has also broken new ground in knowledge exchange: bringing teachers, tutors, students, researchers and alumni together electronically to reflect on “knowledge”; creating student-led (in contrast to teacher-led) activities.

Targeting Girls: Tackling the Gender Imbalance in the Tech Industry

Women are a minority in the technology industry. The HKU Journal of Technology (TecHKU), formed by a group of students from the Faculties of Engineering and Social Sciences, decided to do something about this in Hong Kong.

“Girls4Tech 2016”, a workshop held on February 27, aimed to fuel the interest of middle-school girls in STEM subjects (Science, Technology, Engineering and Mathematics) and careers. Participants from over 100 Hong Kong secondary schools took part in a series of student-led activities such as coding and editing webpages, and solving algorithmic problems. They met face to face with a number of distinguished women tech leaders, who related their life stories. After the workshop, participants were allowed to sign up for visits to such tech giants as Google, IBM, Lenovo, and Microsoft (Hong Kong), to gain a broader understanding of the industry.

HKU President Professor Peter Mathieson took a 360-degree selfie with over a hundred Girls4Tech 2016 participants.

Girls4Tech 2016
https://youtu.be/Tye5hBheyOQ
HKU is using e-learning to reach out to the younger generation, many of whom have a natural curiosity about STEM subjects and are waiting for a chance to stretch the boundaries of their imaginations. On March 19, we co-organised the “STEM Learning Fair 2016” in cooperation with Pak Kau College in Tin Shui Wai to showcase our work in MOOCs, flipped classrooms, and first-year engineering design. As an illustration of how to make STEM studies more approachable, we demonstrated simple learning kits on electro-magnetic theory that can easily be used in classrooms. We will continue to collaborate with different organisations on technology education that has a positive impact on the community.

Students and teachers gathered at the HKU booth at the STEM fair for an experiment in electro-magnetic fields.

Medical students produced videos on basic life-support skills.

**Reaching Out: Partnership with Secondary Schools on STEM**

**Saving Lives: Sharing Knowledge on Basic Life-support**

Students from HKU’s medical school, the Li Ka Shing Faculty of Medicine, have begun producing a series of videos on basic life-support skills, to share their knowledge of emergency medicine with the general public. A team of professional multimedia specialists was brought in to teach the students to communicate well in front of the camera, and to help them transform medical procedures into understandable storyboards. The Emergency Medicine Unit is also developing a mobile app explaining hands-only cardiopulmonary resuscitation, which can turn bystanders into lifesavers.
“The sense of re-connection spanned multiple levels: it was an emotional experience to see my former teacher, Thomas Abraham, giving a lecture on health risk communication in Epidemics. I revisited some basics of journalism through Making Sense of News. The vernacular architecture course reminded me of a semester-long project that I did on Hong Kong heritage when I was an undergraduate. And I re-explored and re-discovered the richness of Chinese culture when I learnt about the various schools of Chinese philosophy from Professor Chad Hansen. I now appreciate lifelong learning so much more.”

Minnie Wang 王婉 (MJ 2009) re-connected with HKU through the university’s MOOCs on edX: she has obtained certificates for all four of the MOOCs issued by HKU to date. “I finished them all when I was working in Beijing last year;”
A major part of e-learning at HKU is now supported by the Technology-Enriched Learning Initiative (TELI), a team of e-learning technologists, instructional designers, multimedia professionals, researchers and partnership managers. Across campus and around the clock, they are ready and keen to work with teachers to turn e-learning into action. TELI has invited faculties to brainstorm, get inspired, and bounce ideas with them to accelerate projects and feel a new momentum of learning.

TELI is led by Professor Ian Holliday, Vice-President & Pro-Vice-Chancellor (Teaching and Learning), and Professor Ricky Kwok, Associate Vice-President (Teaching and Learning) (in black jacket in the photo on the left).

‘Students come to us with new ways to learn, and teachers have to respond with new ways to teach. TELI is keen to work with the whole learning community to explore the unprecedented opportunities afforded by technology, and enhance the impact of an HKU education.’

Professor Ricky Kwok

Further reading:

Life After MOOCs
By Phillip Compeau, Pavel A. Pevzner
Communications of the ACM

The Minecraft Generation
By Clive Thompson
The New York Times Magazine

Will MOOCs kill the university?
By Gillian Terzis
NewPhilosopher

To learn about how TELI’s capabilities work, get in touch with TELI at enquiry@tei.hku.hk

TELI
http://tei.hku.hk