December 19, 2011

Policy development

Statement of policy

No action is required

This document sets out my humble opinions for a strategy and implementation plan for supporting UM as a higher education institution to develop and embed e-learning. It reflects my personal response to UM's need for an institutional e-learning strategy, and has been developed as a volunteer service to our Centre for Teaching and Learning Enhancement (CTLE).

University of Macau (UM)
institutional strategy for e-learning

Enhancing learning and teaching through the use of technology

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Foreword

According to Chris Curran's report entitled "Strategies for e-Learning in Universities" (Curran, 2004), e-Learning (or online education as it is still commonly termed) has been variously defined, but can be simply described as a learning process in which learners can communicate with their instructors and their peers, and access learning materials over the Internet or other computer networks. Indeed, today's learners are bringing new expectations of the power of technology into higher education: their curiosity and innovation of what is possible in higher education is driving every university to explore new approaches to learning supported by technologies. The HEFCE (2005) report from the Higher Education Funding Council for England (HEFCE) says it explicitly: "It is the excitement and interest of learners, teachers and the sector in general that drives our e-learning strategy. Our goal is to help the sector use new technology as effectively as they can, so that it becomes a 'normal' or embedded part of their activities. That does not mean telling universities and colleges what their aims for e-learning should be, nor how they should go about reaching them. But it is about describing overall aspirations for how e-learning can transform learning and teaching, and about supporting institutions in setting their own visions and plans."

It is fully recognized that UM's institutional e-Learning strategy cannot be delivered and developed by a single unit like CTLE alone. We have to work closely with our implementation partners, our academic colleagues from different faculties and departments, our stakeholders (students and parents) and the other constituent units like Academic and Students Affairs Offices, as well as our residential colleges. We should seek to learn from and get the best out of joined-up approaches to the exploration of e-learning, working with our university's senior management, to iron out an institutional e-learning strategy. Above all, we should put our institution, teachers and learners, at the heart of our strategy, and ensure we review and develop it over our important milestones (such as mid-2013 when we move into our new Hengqin campus), taking account of the real impact we could have made on teaching and learning.

Kam H. Vat, PhD
Volunteer of CTLE e-Learning Initiatives

'Many universities and colleges we work with have highlighted the need to understand more about effective ways of using information and communications technology to enhance the student learning experience. This national strategy will provide a broad framework for bodies such as the Higher Education Academy and JISC (Joint Information Systems Committee – UK's expert on information and digital technologies for education and research) to dovetail our efforts, to ensure that institutions carry forward strategies based on evidence of what works, advice and guidance from around the sector and beyond.'

Cliff Allan
Director of Programmes, Higher Education Academy, UK

Proposed UM's institutional strategy for e-learning

To	Professor Simon SM Ho, Vice Rector (Academic Affairs) Professor Rik Carl DAmato, Director (Centre for Teaching and Learning Enhancement, CTLE)

Of interest to those responsible for	Teaching and learning; Information and communications technologies
Reference	N/A
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Executive summary

Purpose

1.   This document drafts out UM's strategy and implementation plan for supporting e-learning for elite undergraduate education, including: disciplinary programs, general education programs, undergraduate research programs, and learning-in-communities programs.

Key points

2.   CTLE is committed to working with partners to fully embed e-learning in a sustainable way within the foreseeable milestones of UM's institutional development.

3. This strategy reflects UM's commitment to providing technological learner-centred education, innovative learning and teaching, and opportunities for enhanced (life-long or vocational) learning. It sets out the aims, objectives and principles we will adopt, and a draft implementation plan that has to be further developed jointly with the University's e-Learning strategy committee (yet to be formed) under the consultation of the university's senior management.

4.   It is proposed to install a division under CTLE, and name it "Education Technology and Innovation Unit" (ETIU), to be in charge of the related e-Learning initiatives.

Action required

5.   This document is for information.

Introduction

6. CTLE is committed to working with campus partners on plans to embed e-learning in higher education in a full and sustainable way. Namely, information and communication technologies (ICT) will be integrated into teaching and learning in order to promote computer literacy, digital information literacy, and technology integration literacy among both staff and students at UM.

7. CTLE is standing firmly by its vision to enhance teaching and learning, through empowering teachers and students to use appropriate technologies effectively, creatively, and confidently. In particular, the following UM e-learning strategic objectives have been identified:

- Develop capacity for provision of e-learning and related support
- Support institutional strategies in learning and teaching, and inform e-learning development in academic departments/faculties
- Promote creativity and innovation in learning and teaching
- Support and promote use of technology in assessment
- Support flexible course delivery
- Provide student learning support
- Support monitoring, evaluation and quality assurance
- Engage in research into learning technologies and/or their application in learning and teaching

8. CTLE perceives that the key requirement to accomplish the above strategic objectives will be the development of capacity for e-learning within the University. The proposal is to create an operational plan which comprises a team of learning technologists to provide direct support to departments, combined with the development of departmental e-learning plans, central support of certain core technologies and processes, and appropriate staff development.

University Context

9. Why engage with learning technologies? CTLE perceives technology as an undeniable external driver for change which permeates our lives, including the way we work, study and research. E-learning, defined as learning facilitated and supported through the use of ICT, is becoming increasingly important in all educational sectors, including increasing student expectation and engagement with technology, responding to a larger and more diverse student body, providing more flexible modes of study to allow for part-time working or work-based learning, and improving opportunities for enhanced learning and teaching, efficiency and increased collaboration, both local and global. However, CTLE also realizes that successful implementation of technology initiatives requires a strategic approach to the development of institutional frameworks and policies. It requires change at all levels, including the cultural elements that have been found, based on the international experiences (say, from HEFCE), to be most difficult aspect of technological implementation; one which requires leadership, institutional commitment and an adaptable e-learning strategy.

10. Why do we need an e-learning strategy? An e-learning strategy is needed to help focus resources including timely infrastructure, staff development and support. There are many instances of good practice (especially, in the context of teaching and learning) around the

University, but there is often insufficient support available. The University needs to build capacity and skills to be ready and able to respond quickly to, and benefit from, the fast moving changes of an increasingly networked world, such as how best to make use of open source e-learning platform, such as Sakai CLE and OAE, to enhance teaching, learning, assessment, administration and research collaboration, both locally and globally.

11. Why does CTLE need to install a division called Educational Technology and Innovation Unit (ETIU)? CTLE recognizes that UM needs to position itself well. There are many different visions and models for e-learning and its implementation, but each institution must devise its strategy to suit its own mission and unique set of circumstances. One example which addresses this complexity comes from Gilly Salmon (2005), whose e-learning and pedagogical innovation framework, originated at the University of Leicester, UK, could be used to stimulate discussion and clarify the reason for choosing an appropriate e-learning strategy at institutional, faculty, departmental and program level that feeds back into further arguments (or rationales) for employing learning technologies as resources to devise respective e-learning plans. ETIU is there to facilitate the engagement of the related academic unit, by extending help to consider the role of technology, pedagogy, and learning objectives when evaluating future (or current) e-learning initiatives, so as to enable the respective units to have ownership of the process by departments and academics.

12. What do we need to kick off CTLE's mission in e-Learning? CTLE is fully aware of its mission to enhance teaching and learning at the University. To execute the e-learning strategy, CTLE must provide a clear vision and mission of e-learning, so that there is greater clarity about the potential aspirations and development of e-learning at UM: The vision is to enable technology to be used effectively, creatively and confidently for the enhancement of teacher teaching and student learning experiences. The mission could be expressed in terms of such contextual principles for e-learning as:

- Encourage ownership by academics and departments
- Support developments related to the learning-teaching-assessing (LTA) strategy
- Employ specific rationales to satisfy institutional, departmental or course needs
- Use appropriate technologies bearing in mind pedagogical and quality issues
- Provide for student support in learning development
- Engage in continuous evaluation to provide feedback and to inform policy

13. What enabling organizational structure is needed to support an institutional e-learning strategy at UM? CTLE is fully aware of a cross-sectional approach in order to fulfil its mission and achieve the e-learning strategic objectives for UM. Namely, this structure should comprise an e-Learning strategy committee (Senate Standing Committee, perhaps), responsible for policy development, and an e-Learning Task Force, responsible for implementing and informing e-learning strategies. The former may be composed of the director of CTLE, division head of CTLE-ETIU, plus senior representatives from various faculties, such as the associate deans in academic affairs. The latter is composed of the division head of ETIU, ETIU learning technologists (2), faculty learning technologists (1-2 from each faculty), ICTO technical support coordinator (1), and departmental e-learning coordinators (2). The exact terms of reference for these two groups are yet to be elaborated.

Possible Implementation Plan

Strategic e-learning Vision:

To enable technology to be used effectively, creatively, and confidently for the enhancement of the teacher teaching and the student learning experiences

Legends: FLT – Faculty Learning Technologist; DEC – Departmental E-learning Coordinator; ETIU – Educational Technology and Innovation Unit; CTLE – Centre for Teaching and Learning Enhancement; ICTO – Information and Communications Technology Office; VLE – Virtual Learning Environment

Strategic Objective	Targets	Timeframe	Responsibility
1. Develop capacity for provision of e-learning and related support	1.1 Recruit and induct 1 Faculty Learning Technologist (FLT) for or from each related faculty	2012 September	CTLE (ETIU)
	1.2 Develop the role of the recently appointed CTLE learning technologist	2012 May	CTLE (ETIU)
	1.3 Establish an e-learning committee to discuss operational and strategic issues on a timely basis	2012 May	CTLE (ETIU)
	1.4 Interface with ICTO with regard to • Provision of core technologies (VLE Sakai / Moodle administration and technical issues) • Piloting and further implementation of peripheral technologies, including Turnitin, classroom technologies and software	Ongoing	CTLE (ETIU), ICTO, FLTs
	1.5 Provide staff development for core and peripheral technologies	Ongoing	CTLE (ETIU), ICTO, FLTs
2. Support institutional strategies in learning and teaching, and to inform e-learning developments in	2.1 Assist departments to incorporate e-learning implementation into departmental plans and	2012 September	FLTs, Departments (piloting and phased approach)

departments	annual monitoring reports		
	2.2 Centrally provide different VLE modules complete with basic administrative information for course delivery (Moodle + Sakai piloting)	Ongoing for Moodle; 2012 September for Sakai	CTLE (ETIU), ICTO, FLTs
	2.3 Re-develop CTLE website to incorporate e-learning section to disseminate best practice, case studies and other relevant information	2012 September Ongoing	CTLE (ETIU)
	2.4 Create social networks for discussion, support and sharing best practice	2012 September Ongoing	CTLE (ETIU), FLTs, Departments, Academics
3. Promote creativity and innovation in learning and teaching	3.1 Support and encourage academics to engage with e-learning by identifying potential uses of learning technologies, including effective use of VLEs, use/creation of e-resources, appropriate learning design in a subject area, exemplars of best practice	Ongoing	CTLE (ETIU), FLTs, Departmental e-learning coordinators (DECs)
	3.2 Provide information, advice and the opportunity to explore new technologies, e.g., podcasts, lecture capture, and digital storytelling	Ongoing	CTLE (ETIU), FLTs, DECs
4. Support and promote use of technology in assessment	4.1 Support the use of technology in formative assessment and feedback, e.g., VLE assessment tools, and related e-portfolio tools	2012 September Ongoing	CTLE (ETIU), FLTs, DECs, ICTO coordinator(s)
	4.2 Review current best practice of student and teacher assessment, and provide recommendations for use and development	2012 September Ongoing	CTLE (ETIU), DECs

	4.3 Provide University guidelines for using e-assessment both formatively and summatively	Ongoing	CTLE (ETIU)
	Engage with other international partners (say, LearnHigher in UK) in the area of continuous improvements in e-learning best practices	Ongoing	CTLE (ETIU)
5. Support flexible course delivery	5.1 Provide expertise in designing both blended and fully online courses, for use in a variety of learning environments, including student support, accessibility, quality considerations and quality assurance or accreditation codes of practice	2012 September Ongoing	CTLE (ETIU), FLTs, DECs
	5.2 Advise on the use of VLE and other technologies to support students on flexible or blended course delivery	2012 September Ongoing	CTLE (ETIU), FLTs, DECs
6. Provide student learning support	6.1 Ensure students are made aware of the learning support available to them for using the related VLE	2012 September Ongoing	CTLE (ETIU), FLTs, DECs, ICTO coordinator(s)
	6.2 Ensure students are aware of how their courses use the VLE and the related expectations on them, e.g., submission of assignments, frequency of logging on, input to discussion forums, collaborative writing on wikis, etc.	2012 September Ongoing	FLTs, DECs, Academics
	6.3 Provide an institutional VLE training module for students to cover all tools including such thing as e-submission via Turnitin	2012 September Ongoing	CTLE (ETIU)
	6.4 Provide information on	2012 September	FLTS, DECs

	college study skills and developing student e-learning techniques and strategies	Ongoing	
	6.5 Support student engagement in the use of e-portfolios for learning and assessment	2012 September Ongoing	CTLE (ETIU), FLTs, DECs, ICTO coordinator(s)
7. Support monitoring, evaluation and quality assurance	7.1 Monitor and evaluate the use and impact of e-learning in departments to inform the departmental plan and annual monitoring report	2012 December Ongoing	CTLE (ETIU), FLTs, DECs
	7.2 Collect and analyze student feedback on their e-learning experiences	2012 December Ongoing	CTLE (ETIU), FLTs, DECs, Academics
	7.3 Gather data on the use of e-learning at UM (piloted departments) to allow comparison with related benchmarks and inform future institutional strategic developments	2012 December Ongoing	CTLE (ETIU), FLTs, DECs, Academics
	7.4 Ensure that all regulations relevant to e-learning are readily available via the e-learning platform (website), e.g., quality assurance or accreditation codes of practice, University regulations, information and guidance on e-copyright, IPR (intellectual property rights), accessibility, etc.	2012 December Ongoing	CTLE (ETIU)
8. Engage in research: learning technologies and/or their application in learning and teaching	8.1 Identify current areas of good practice, or develop a practice base that is sufficiently robust and innovative to support bids for externally funded projects, or grants application for internally generated projects	2012 December Ongoing	CTLE (ETIU), FLTs, DECs, Academics
	8.2 Actively engage with	2012 December	CTLE (ETIU), FLTs, DECs,

	organizations such as the FDCT, GASES in Macau, and other international organizations like LearnHigher in England, to identify potential opportunities for collaborative research projects	Ongoing	Academics
	8.3 FLTs to seek certified membership from such organization like ECDL Foundation or Association of Learning Technologists and engage in research	2012 December Ongoing	FLTs
	8.4 Develop a reward and recognition scheme to recognize and encourage e-learning best practice	2012 December Ongoing	CTLE (ETIU)

NB Adapted with courtesy from *University of Kent e-Learning Strategy 2007*

Example e-Learning Project

The VLE (Virtual Learning Environment) called Sakai

Sakai (http://sakaiproject.org/), as an open source, Web-based, collaboration learning environment (CLE) is focused primarily on higher education. It supports the activities of students, teachers, researchers, and Sakai administrators. Sakai is flexible and enables users to configure it for their own specialized audiences. Teachers can create course sites and add chat, forums, blogs, wikis, and many other tools. Students can, among other things, upload assignments, use the tools, and interact with instructors and classmates. Researchers and groups of peers can create project sites for sharing materials and ad hoc interactions. Sakai has a set of frameworks (internal structures) that makes it easier for those who want to build tools. By default, a new user owns a worksite with only a basic set of tools enabled, including a few for self-administration purposes. If the user wants, he or she can request a project, course or portfolio site:

- *Project* – A project site has two main types of users: the site maintainer and those who can use and share the resources and tools. Typical users of a project site include researchers working on the same study, teachers who wish to compare notes, and ad hoc groups of users who wish to interact together online.
- *Course* – A course site is a virtual online expression of a real course. The target audiences are teachers who maintain the site with teaching assistants and students who use the site. Teachers can post exams, send announcements, upload syllabi and grade book results, and choose which tools the students can use to interact. Teaching assistants have less power, but can maintain forums and help maintain processes such

as the ebb and flow of marking assignments. Students can chat, take tests, upload files, and send mail to others in the course.

- *Portfolio* – Portfolio sites are places where students store evidence of their work in a structured format. As a student progresses through his or her education or course, that evidence builds up within an online structure set of links and web pages. This can be helpful for finding employment later because potential employers can make judgments based on the evidence presented.

The Sakai portfolio (http://www.rsmart.com/portfolios) comprises a suite of web-based tools that allow users to store, to organize and to present digital artefacts representing evidence of their learning, teaching, or institutional achievement. Sakai's suite of portfolio tools is designed to facilitate the creation of portfolios for self-presentation, reflection, teaching and learning as well as course, program and institutional assessment. By collecting, selecting and presenting subsets of their work, students can create portfolios that showcase coursework, professional experience, academic competency or simply self-expression. Instructors can guide students in their creation of portfolios by designing educational scaffolds that engage them in reflection upon learning in relation to a set of educational outcomes or professional standards. Administrators can use the system as a decision-making and reporting tool. Configured and customized to align with institutional goals and objectives, portfolio sites collect real evidence of teaching and learning that can be correlated with and assessed against course, program, departmental, and institutional objectives.

It is expected that CTLE has a mission to develop what evidence-based mechanism to use in support of UM's movement in elite undergraduate education. Accordingly, one of the most archetypal uses for portfolios suggested in Sakai is the personal representation portfolio, namely, our student portfolio. Another example of Sakai portfolios in use is the teaching and learning portfolios. And the third type of Sakai portfolio most commonly created is the assessment and accreditation portfolio. They are briefly described below for further exploration:

- Personal representation portfolios have a long history of use in disciplines such as art, music, writing and photography, where a culture of presenting samples of one's work has long been the norm. These types of portfolios are generally created to showcase a selection of one's work in a given area, in order to demonstrate talent, experience, skill or development. Such portfolios may also be created to provide evidence of one's development over time across different areas. An example of this might be a resume or curriculum vitae, assembled using artefacts from one's online learning environment and shared with potential employers, educational institutions, mentors, peers or other interested parties. Portfolios created for personal representation tend to have both a developmental and a creative focus. They are most effective when they guide users in collecting information about themselves, assist users in developing their virtual identities and facilitate users' presentation of themselves to designated audiences. Some common examples of personal representation portfolios include: digital resumes, professional portfolios, and personal narrative portfolios.

- Teaching and learning portfolios have an educational focus and are generally used to gain insight into a teaching and learning process. They are multi-faceted, guiding students in collecting learning artefacts, reflecting upon these in relation to a linked set of learning standards, objectives or criteria and presenting their work for feedback and evaluation. Teaching and learning portfolios require advanced planning on the part of educational practitioners in identifying learning outcomes, objectives, or criteria used to represent the goals of the teaching and learning process. Many practitioners find that the process of creating a teaching and learning portfolio is as valuable as the actual product for their students. Asking students to reflect upon their learning and present their work in a way that best speaks to their mastery of a subject, issue or experience is a fundamental experiment in meta-cognition that goes beyond what the average student is traditionally asked to do in a classroom. By giving students the opportunity to reflect upon their learning and share their learning artefacts with external audiences, these portfolios seek to make the processes of teaching and learning more transparent as well as accessible. Some examples of teaching

and learning portfolios include: general education portfolios, disciplinary portfolios, and extra-curricular transcript portfolios.

- Assessment and accreditation portfolios are generally derived from teaching and learning portfolios and are used to assess the efficacy of a given instructional program or objective. In an age of accountability measures applied to education, this type of portfolio is steadily growing in use. Assessment and accreditation portfolios tend to include quantitative measures of student performance gauged against a set of learning outcomes that have been identified by an instructor, program, department or institution. By using reports that aggregate and analyze data surrounding student learning in relation to a predefined set of educational outcomes, these types of portfolios provide a rich source of information about the actual results of the teaching and learning process and can therefore help institutions align their institutional practice with their stated institutional mission or goals. Institutions may present this data along with representative artefacts to demonstrate their progress in fostering learning in accordance with their goals. The results of assessment portfolios are thus a valuable resource for the accreditation process. In support of accreditation or program assessment, they are usually combined with portfolios for teaching and learning to aggregate and analyze assessment data and identify representative artefacts of learning. Some examples of assessment and accreditation portfolios include: institutional outcomes assessment portfolios, departmental outcomes assessment portfolios, and institutional accreditation portfolios.

It is expected that this Sakai CLE initiative should better be conducted under the collaboration between CTLE and ICTO, since this is compatible with both the missions of ICTO (Academic Computing Support) and of CTLE (Teaching and Learning Enhancement through the application of ICTs – Information and Communications Technologies). This initiative should not consume a lot of monetary resources in equipments given ICTO's infrastructure support on campus, but requires the installation of some reward and recognition system for those involved, especially for ICTO support staff. Yet, in view of the manpower constraints from ICTO, and the long-term development of CTLE, it is suggested to prepare respective budgets for:

- ICTO to recruit additional staff for such long-term collaboration with CTLE, in the area of ICT-related projects related to any further initiatives enhancing the quality of teaching, learning, research, services, and assessment with the support of ICT, with Sakai CLE exploration being only one specific example to kick off such collaboration; and/or
- CTLE to recruit some technical staff to support any such initiatives with the collaboration from ICTO, playing the role of technical housekeeper in CTLE to follow up with the progress, completion, launch and administration of similar initiatives. The CTLE staff, referred to as learning technologist, has to go through some training provided by ICTO in the related areas of expertise, under different project requirements.

It is expected that the completion of our Sakai-powered CLE from CTLE should lead to something like the following environment:

- from Australia National University's Alliance system: https://alliance.anu.edu.au/portal/
- from University of Oxford's WebLearn system: https://weblearn.ox.ac.uk/portal
- from Indiana University's OnCourse system: https://oncourse.iu.edu/portal
- from Stanford University's CourseWork system: https://coursework.stanford.edu/portal
- from University of Michigan's CTools system: https://ctools.umich.edu/portal
- from University of California at Berkeley's bSpace system: https://bspace.berkeley.edu/

Recommendations for Measures of success

To sum up this document, CTLE considers our University to have embedded e-learning (HEFCE, 2005) where:

a. ICT is commonly accepted into all aspects of the student experience of higher education, with innovation for enhancement and flexible learning, connecting areas of teaching and learning with other aspects of life and work.

b. Students are able to access information, teacher support, expertise and guidance, and communicate with one another effectively wherever they are. They are able to check and record their achievement in a form designed for multiple uses to enable personal and professional development.

c. Teachers have tools for course design to enable better communication between them and their students, giving feedback and targeted support. Individual teachers have access to information about the materials available, and support for continuous improvement of them.

d. Subject communities are able to share materials in ways that enhance their ability to produce customized high quality courses. They are supported to work collaboratively in designing materials, which are effectively quality assured and widely disseminated. They have access to research information to inform curriculum development and research-based teaching.

e. Institutions are able to build appropriate infrastructure and resources support for integrating registration (enrolment) and learning functions. They have links with regional networks of institutions to support progression and community involvement.

f. Lifelong learning networks support connectivity between institutions to provide seamless access for students and staff.

g. Staff are supported at all stages to develop appropriate skills in e-learning, and these skills are recognized in their roles and responsibilities and in reward structures. They have access to accreditation for their level of skills and professional practice in linking learning technology with teaching.

References

Curran, C. (2004). Strategies for e-learning in universities. *Research & Occasional Paper Series: CSHE.7.04.* Center for Studies in Higher Education, University of California, Berkeley.

HEFCE (2005). *HEFCE strategy for e-learning.* Higher Education Funding Council for England (HEFCE), Joint Information Systems Committee (JISC), and Higher Education Academy (HEA).

HEFCE (2009). *Enhancing learning and teaching through the use of technology: A revised approach to HEFCE's strategy for e-learning.* Higher Education Funding Council for England (HEFCE)

JISC e-Learning Focus (2007). Transforming institutions through e-Learning. Last retrieved on 2011DEC19 at: http://www.elearning.ac.uk/features/Transformation

JISC News (2010). *New study urges colleges to develop e-learning strategies for higher education.* Last retrieved on 2011DEC19 from JISC (Joint Information Systems Committee, UK) site at: http://www.jisc.ac.uk/news/stories/2010/12/vle.aspx

OECD (2005). *E-Learning in tertiary education: Where do we stand?* OECD Publishing. Partial content available at http://www.oecd.org/dataoecd/55/25/35961132.pdf

Salmon, Gilly (2005). Flying not flapping: A strategic framework for e-learning and pedagogical innovation in higher education institutions. *ALT-J, Research in Learning Technology, 13*(3): 201-218.

University of Kent e-Learning Strategy 2007
Last retrieved on 2011DEC19 at:
http://www.kent.ac.uk/uelt/ced/themes/elearning/University%20E-Learning%20Strategy.pdf