

Master of Education

MEDD 6203

**Teaching and Learning with
Educational Technology (2014-15)**

Overview

This module is core to the M. Ed. specialism Designing Powerful Learning Environments (DPLE), offered by the Faculty of Education, University of Hong Kong. The module aims to provide a comprehensive introduction to the various uses of ICT for teaching and learning, including traditional CAL applications, cognitive tools, and collaborative tools involving the use of various modes of computer mediated communication. The module highlights the theories of learning that underpin the design of different environments and the social and educational contexts within which these are intended to be used. Issues related to implementation and evaluation also are examined.

The module is organized in such a way so as to provide an experiential process for participants to learn how educational technology can contribute to the design of effective and engaging learning environments.

Aims

The module aims to provide students with foundation to their understanding of information technology in education through:

- Exploration of current and emerging technologies and their integration in teaching and learning: learning with and learning from technology, curricular, cross-curricular and extra-curricular integration of technology, teachers' uses of technology tools, students' uses of technology tools, learning management platforms, Web 2 and other emerging tools and paradigms, technology across an educational institution and evaluation of technology implementation.
- Engagement in practical activities of using technology: engagement in on-line learning activities, presentation of ideas in variety of digital media formats, using modern technology tools and platforms to support teaching and learning, and development of an e-portfolio.

Pre-requisites and Co-requisites

There is no pre-requisites or co-requisite for this module.

Module Learning Outcomes (MLO)

<i>MLO No.</i>	<i>MLO Statement</i>	<i>Assessment Task</i>
1	Awareness of policies, international trends, theories, and issues relating to learning with ICT	1
2	Awareness of a variety of ICT tools, and ability to use them for learning	1
3	Ability to create ICT content	2
4	Ability to design, carry out, and evaluate instruction that makes use of ICT	2

These Module Learning Outcomes integrate aspects of all four Specialism Outcomes:

- Understand the learning sciences as a field and a foundation for educational design
- Ability to locate and evaluate research relevant to a question, and design a research investigation of design study
- Understand the major trends and issues in educational technology, awareness of the main technologies, and ability to make effective use of educational technology in teaching and learning
- Ability to conceive, plan, carry out, and evaluate educational designs

The Specialism Learning Outcomes are addressed in each core module (MEDD 6201, MEDD 6202, MEDD 6203, MEDD 7108 and MEDD 6014), and the level to which students are expected to demonstrate the outcomes improves each semester. This module covers only two of them, and the Module Learning Outcomes target the ways to demonstrate them.

The specialism and modules also address the University Educational Aims and 21st century skills through the work students do in class and in professional contexts:

1. Pursuit of academic/professional excellence, critical intellectual inquiry, lifelong learning
2. Tackling novel situations and ill-defined problems
3. Critical self-reflection, greater understanding of others, and upholding personal and professional ethics
4. Intercultural understanding and global citizenship
5. Leadership and advocacy for the improvement of the human condition


Module Facilitators

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Structure

The module is based on 10 sessions of 2.4 hours duration each, totaling 24 hours as well as an additional 80 hours of additional study time, to be spent on reading, group work, self-directed study, preparation and assessments. All sessions are on Tuesdays from 18:00 to 20:30.

 Schedule	
<i>Session 1</i>	Sept. 16, 2014, 18:00 to 20:30 The State of Technology Use in Schools
	→ Module overview and requirements → The place of ICT in educational development
	Activities - Students reflect on successful uses (or not) of technology that enhance teaching or learning. They should include some reflection or comment from someone else, such as a parent, employer/employee, teacher, or student about their views of how technology affordances support learning. These reflections should be posted on Twitter. - We will survey policy documents from jurisdictions that cover the participants in the course--Hong Kong, mainland China, and Singapore—to identify current trends in the planning for ICT use in education.
	Resources <ul style="list-style-type: none">• Collins, A. (2009). <i>Rethinking education in the age of technology: The digital revolution and schooling in America</i>. New York: Teachers College Press.• ICT policy documents relevant to students' own professional context (e.g., EDB, Unesco China, Baccalaureate Program, Singapore Ministry of Education).• Yuen, A. H. K., Law, N., Lee, M. W., & Lee, Y. (2010). <i>The changing face of education in Hong Kong: Transition into the 21st century</i>. Hong Kong: CITE/Quality Education Fund.• Law, N., Pelgrum, W. J., & Plomp, T. (Eds.) (2008). <i>Pedagogy and ICT use in schools around the world: findings from the IEA SITES 2006 study</i>. New York & Hong Kong: Springer/CERC.

Sept. 23, 2014, 18:00 to 20:30

Computers as Cognitive and Metacognitive Tools

- We review key findings from the learning sciences: Build on prior knowledge; organize knowledge for retrieval and use; and promote reflection on learning (How People Learn; CHLS chap 3).
- Affordances and computers as cognitive tools
- Learning first, technology second

Activities

- Review relevant learning theories (also see MEDD 6201, session 2)
- Discuss the concept of cognitive tool
- Examples of cognitive tools (students explore those relevant to their subject areas)

Resources

- Kim, B., & Reeves, T. C. (2007). Reframing research on learning with technology: in search of the meaning of cognitive tools. *Instructional Science*, 35, 207-256.
- Jonassen, D., & Land, S. (Eds.) (2012). *Theoretical foundations of learning environments*. New York: Routledge.
- Spector, J. M. (2012). *Foundations of educational technology: Integrative approaches and interdisciplinary perspectives*. New York: Routledge.

Sept. 30, 2014, 18:00 to 20:30

The Technical Learning Environment

This session is intended to explore the various technical tools available to teachers for designing an engaging and collaborative learning environment, and builds on the theoretical foundation of the previous session.

- Presentation software: PowerPoint, Keynote, Prezi
- Learning Management Systems: Edmodo, Moodle
- Cloud services: Google apps, SlideShare, Dropbox, Flickr, Creative Commons, Delicious
- Hardware: Interactive whiteboards and tabletops, tablets, smartphones, wearable data loggers, Google glasses

Activities

- Explore as many tools as possible, emphasizing a new mindset about roles of teachers and students

Resources

- Web-based resources will be posted in the online course environment.

Oct. 7, 2014, 18:00 to 20:30

Designing Digital Content for Teachers (ONLINE – No face to face class)

This session will be an asynchronous online session. Students are expected to complete the learning activities posted in Moodle within one week from this date (i.e., by 23:55, Oct. 14).

- ➔ Blended learning
- ➔ Multimedia learning principles
- ➔ Web 1 technologies: digital delivery of static content
- ➔ The flipped classroom
- ➔ Copyright in the digital age

Activities

- Webinar on multimedia learning principles and their application to presentations, websites, and e-books.
- Evaluation of the content of an online resource
- Viewing of online material on flipped classroom
- Reflection on learning from these materials

Resources

- Mayer, R. E. (Ed.) (2005). *The Cambridge handbook of multimedia learning*. New York: Routledge.
- Clark, R., & Mayer, R. E. (2008). *E-learning and the science of instruction: Proven guidelines for consumers and designers of multimedia learning* (2nd ed.). San Francisco: Pfeiffer.
- Pitler, H., Hubbell, E. R., Kuhn, M., & Malenoski, K. (2007). *Using technology with classroom instruction that works*. Denver, CO: ASCD.

Oct. 21, 2014, 18:00 to 20:30

Students as Content Creators

- ➔ Creating wikis, weblogs, and digital video, podcasts
- ➔ Copyright in the digital age

Activities

- Follow up on the online learning in the previous session
- Students explore a wide range of examples of content created by K-12 students
- Students should work to develop practical ideas for using these social media; the resources for this section provide good reading material in this area.

Resources

- Poore, M. (2013). *Using social media in the classroom: A best practice guide*. London, UK: SAGE.
- Richarson, W. (2009). *Blogs, wikis, podcasts, and other powerful web tools for classrooms*. Thousand Oaks: Corwin Press.

Oct. 28, 2014, 18:00 to 20:30

Online Discussions

Online discussions are popular, but the participation levels often are disappointing, the outcomes unclear, and assessment problematic. This session will explore these issues.

- Types of discourse in asynchronous online environments
- Asynchronous versus synchronous discussions
- Assessing online discussions
- Pedagogical strategies

Activities

- Students reflect on their own experience (good and bad) of online discussions
- Explore the need for moderation, task design, and influence of assessment

Resources

- Various unpublished resources will be presented to help us think about the issues
- Ellis, R. A., & Goodyear, P. (2010). *Students' experiences of e-learning I higher education: The ecology of sustainable innovation*. New York: Routledge.
- Hew, T., & Cheung, W. S. (2012). *Student participation in online discussions: Challenges, solutions, and future research*. New York: Springer.
- Stahl, G. (Ed.) (2009). *Studying virtual math teams*. New York: Springer.

Nov. 4, 2014, 18:00 to 20:30

Technology Enhanced Inquiry Environments

- Learning in virtual worlds (CHLS2 chap. 26)
- Technology Enhanced Learning in Science (TELS)
- Quest Atlantis
- River City
- Netlogo

Activities

- We will explore the various environments and the kinds of learning that are possible in them

Resources

- Barab, S., Pettyjohn, P., Gresalfi, M., Volk, C., & Solomou, M. (2012). Game-based curriculum and transformational play: Designing to meaningfully positioning person, content, and context. *Computers & Education*, 58(1), 518-533.
- Jacobson, M. J., Kim, B., Miao, C., Shen, Z., & Chavez, M. (2010). Design perspectives for learning in virtual worlds *Designs for learning environments of the future* (pp. 111-141). New York: Springer.
- Ketelhut, D. J., Nelson, B. C., Clarke, J., & Dede, C. (2010). A multi-user virtual environment for building and assessing higher order inquiry skills in science. *British Journal of Educational Technology*, 41(1), 56-68.
- Slotta, J. D., & Linn, M. C. (2009). *WISE science: web-based inquiry in the classroom*. New York, NY: Teachers College Press.

<i>Session 8</i>	<p>Nov. 11, 2014: 18:00 to 20:30 Mobile Learning</p> <ul style="list-style-type: none"> → Mobile learning background (CHLS2 chap. 25) → Tables and aps → Wearable technologies → E-class → Pedagogical designs for mobile learning <p>Activities</p> <ul style="list-style-type: none"> - We will examine some examples of learning with mobile technologies in different subject areas, including the flipped classroom (in more detail). <p>Resources</p> <ul style="list-style-type: none"> • Berge, Z. L., & Muilenberg, L. Y. (Eds.). (2013). <i>Handbook of mobile learning</i>. New York: Routledge.
<i>Session 9 (Online)</i>	<p>Nov. 18, 2014, 18:00 to 20:30 Technological Pedagogical Content Knowledge [ONLINE – No face to face class]</p> <p>This session will be run as a <u>synchronous</u> online class. That means all students will be online at the same time, and at their own location. We will give instructions for connecting before the session.</p> <ul style="list-style-type: none"> → Explanation of the notion “Pedagogical Content Knowledge” → Extending the model to technology-enhanced situations → Elaborating TPCK for specific lessons with technology <p>Activities</p> <ul style="list-style-type: none"> - Introduce the TPCK model in a video to be watched before the start of the session - Discuss questions arising from the video - Work out specific examples in small, but online, groups - Small groups share their findings to the whole class <p>Resources</p> <ul style="list-style-type: none"> • AACTE Committee on Innovation and Technology (Eds.) (2008). <i>Handbook of technological pedagogical content knowledge (TPCK) for educators</i>. New York: Routledge.
<i>Session 10</i>	<p>Nov. 25, 2014, 18:00 to 20:30 Module Summary</p> <ul style="list-style-type: none"> → School leadership and ICT → Review of project requirements for this module <p>Activities</p> <ul style="list-style-type: none"> - Review of the module <p>Resources</p> <ul style="list-style-type: none"> • Schrum, L., & Levin, B. B. <i>Leading 21st century schools for engagement and achievement</i>. Thousand Oaks: Corwin Press.

Assessment Components

There are two components of assessment for this course. You are required to achieve a pass for each of these components for successful completion of this course. Your assignments must be completed by TBA, 2014. Online feedback will be provided by TBA, 2014.

Assessment Component 1

<i>Component</i>	<i>Title</i>	<i>Format</i>	<i>Weight</i>	<i>Due Date</i>
1	Consultancy Project	Individual or Collaborative	50%	January 12, 2015

Students are required to carry out a small-scale project around technology use in an educational setting. The project can be an individual one or students can collaborate in a group of no more than three students. In collaborative projects, it is necessary to clearly identify the contributions and achievement of each student. There are two options:

- Carry out an evaluation of the state of technology use in your own school, grounding the analysis in relevant policy documents and your experiences in this course, and make several recommendations for developing the school's policies and practices. In this option, FT students who do not currently teach can collaborate with a PT student.
- Liaise with a teacher at a local school who would like to develop his/her use of educational technology. Work with the teacher to develop at least three lessons that make use of ICT, observe these lessons, and provide suggestions for future development.

At the end of the project, the individual student or team hands in a report of 2000 to 2500 words including references, and should follow APA (American Psychological Association) style. The report should describe the background to the project, its goals, methods and results, and the recommendations.

Assessment Component 2

<i>Component</i>	<i>Title</i>	<i>Format</i>	<i>Weight</i>	<i>Due Date</i>
2	Electronic portfolio	Individual	50%	December 15, 2014

In this specialism we will use an electronic portfolio in the DPLE domain on Google to reflect on and showcase learning in each of the four core modules and MEDD 6014, using the four Specialism Learning Outcomes as a guide. In this module, students should self-evaluate and reflect on their learning relating to the two Specialism Outcomes relevant to this module, which relate to educational technology and educational design. You should discuss your learning in several entries; at least two of these should include ICT content artifacts that represent the development of technical skills. PT students can revisit content from earlier courses but rework it using a new technology (e.g., the Research Methods presentation or a podcast based on part of the Learning in the Disciplines workshop). Students can also write about the development of the electronic portfolio itself.

NOTES: (1) In this module, students are expected to participate actively in the use of a variety of technologies. This work is assessed only formatively, meaning that feedback is provided but no grade is assigned. This work can provide important material for the electronic portfolio. For example, a student may derive insights about the use of online discussion forums from his/her own experience and write about this in the portfolio. (2) It is possible and recommended to integrate the two assessment components to some extent. For example, content created for the first task can be incorporated in the portfolio.