DIGITAL LEARNING AND TEACHING

Disruptive Innovation and Digital Shift

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Scope

- Reasons for change
- Disruptive Innovation and Digital Shift in Learning and Teaching
  - Global Education - MOOCs and MicroMasters
  - Online Learning and Flipped Learning
  - Teaching and Learning Beyond the Classroom (Distributed Learning)
Curtin University is Western Australia’s largest university with over 56,000 students, from 130 countries.

RANKED IN THE TOP 1% OF UNIVERSITIES WORLDWIDE (Academic Ranking of World Universities 2017)

CURTIN IS RANKED #2 IN THE WORLD FOR MINERAL AND MINING ENGINEERING (2017 QS World University Rankings by Subject)

Received five-star overall excellence rating in the QS Stars rating.
Curtin Malaysia

- Located in Miri, Sarawak, on the mystical island of Borneo
- The first and largest offshore campus of Curtin University
- The first offshore campus set up in East Malaysia.
- Offers foundation, undergraduate and postgraduate studies

Study areas
- Faculty of Business (AACSB accredited)
- Faculty of Humanities
- Faculty of Science and Engineering
Our Vision and Mission

Our Vision
To be a recognised global leader in research, education and engagement.

Our Mission
Transform lives through education and research.
Reasons for change

- Change is a process not an event
- Educational objectives remain the same but the way we achieve them may need to change
- To remain competitive in higher education industry
- **Students learn differently now**
- To prepare our graduates to be future ready
- Opportunity for SoLT
The way our children **LEARN** has changed!
The way our children PLAY has changed!
Technology has changed the way of teaching and enhanced learning
Industrial Revolution

1st: Mechanization, water power, steam power (1784)
2nd: Mass production, assembly line, electricity (1870)
3rd: Computer and automation (1969)
4th: Cyber Physical Systems (Today)

Curtin University Malaysia
By 2020 …

- By 2020, the Fourth Industrial Revolution will have brought us advanced robotics and autonomous transport, artificial intelligence and machine learning, advanced materials, biotechnology and genomics.
- These developments will transform the way we live, and the way we work.
- Some jobs will disappear, others will grow and jobs that don’t even exist today will become commonplace.

What is certain is that the future workforce will need to align its skillset to keep pace.
Example: HEMA Supermarket (by Alibaba)
in 2015

1. Complex Problem Solving
2. Coordinating with Others
3. People Management
4. Critical Thinking
5. Negotiation
6. Quality Control
7. Service Orientation
8. Judgement and Decision Making
9. Active Learning
10. Creativity


in 2020

1. Complex Problem Solving
2. Critical Thinking
3. Creativity
4. People Management
5. Coordinating with Others
6. Emotional Intelligence
7. Judgement and Decision Making
8. Service Orientation
9. Negotiation
10. Cognitive Flexibility

Source: The Future of Jobs
A 21st Century Educator Prepares for the Future

Looks forward to the future

- aware of the ever-changing trends in technology
- in tune of what the future may bring to education

AWARES OF THE CAREER OPPORTUNITIES IN THE FUTURE

- Always advocating towards forward thinking and planning to ensure all students will not be left behind

USES APPROPRIATE TEACHING STRATEGIES

- Focus in education is on preparing today’s learner for the future of where they will live and where they will work, not for our current world
A 21st Century Educator Prepares for the Future

A master of technology in class
- knows what the best tools are, and how and when to use them

Knows how to collaborate
- shares ideas, expertise and knowledge with others
- communicates and learns from others
- able to self-reflect

Is adaptive
Tools have changed, not the practice
- adapts to curriculum and requirements and be able to use their imagination to teach in creative ways.
Tools changed but not educational practice

A great educator will not only embrace technology, but be willing to learn more about it.
A 21st Century Educator Prepares for the Future

Is a lifelong learner

- stays current and on top of what’s new in education
- know how to change it to keep up-to-date with what is current

Advocates for their profession

- Focuses on the important issues and discuss with their community
- facilitates and guides to help embrace 21st century learning.

"Once you stop learning, you start dying"
- Albert Einstein -
Curtin’s Graduate Attributes

1. Apply discipline knowledge, principles and concepts
2. Think critically, creatively and reflectively
3. Access, evaluate and synthesise information
4. Communicate effectively
5. Use technologies appropriately
6. Utilise lifelong learning skills
7. Recognise and apply international perspectives
8. Demonstrate intercultural awareness and understanding
9. Apply professional skills
Have you changed the way you teach and assess?

Student-Centered Learning & Technology Enhanced Learning
5 Compelling Reasons

- Students will make meaning of what they are learning
- Students will retain what they learn longer
- Students will learn more than just the content
- Chances are good students will be changed by what they learn
- Students will love learning more
Disruptive Innovation and Digital Shift in Learning and Teaching

Global Education with MOOCs and MicroMasters
Massive Online Open Courses (MOOCs)

- Curtin believes in ensuring that education is accessible to all.
- Anyone can complete short courses on a variety of topics online for free
- CurtinX – collaboration between Curtin University and edX
MOOCs @ Curtin

Curtin University’s MOOCS

- CurtinX Digital Branding and Engagement
- CurtinX Reputation Management in a Digital World
- CurtinX Buyer Behaviour and Analysis
- CurtinX The Business of Mining
- CurtinX Environmental Studies: A Global Perspective
- CurtinX Human Rights Activism, Advocacy and Change
- CurtinX Human Rights Theory and Philosophy
- CurtinX Human Rights and Development
- CurtinX Life with Diabetes
- CurtinX Analytics for the Classroom Teacher

Source: https://www.edx.org/school/curtinx
Massive Online Open Courses (MOOCs)
MOOCs @ Curtin

Curtin University’s new MOOCs in 2018

- Noongar Language and Culture
- IoT Sensors and Devices
- IoT Networks and Protocols
- IoT Programming and Big Data
- How Media Got Social
- Online Marketing Strategies
- Strategic Brand Management
- Globalisation and Sustainable Development

Source: https://www.edx.org/school/curtinx
MicroMasters™ Programmes @ Curtin

- MicroMasters in the Internet of Things (6 MOOCs)
- MicroMasters in Human Rights (3 MOOCs)
- MicroMasters in Marketing in a Digital World (5 MOOCs)
MOOCs and MicroMasters™ @ Curtin

- MicroMasters is a program of study with a number of MOOCs – at least 3 MOOCs (with learning objectives and assessments)

- Graduate level courses

- **NOT** a degree or award program

- Credential and credit

- Learners must choose ‘verified’ pathway, fulfil all MOOCs requirements to receive a MicroMasters credential and certificate

- Learners must meet Curtin admission requirements

Acknowledgement: Adapted from presentation of Prof Vanessa Chang, Director, Learning Innovations, Curtin University, June 2018
MicroMasters – Provider and Pathway Provider

**Provider** of MicroMasters with a pathway into a Curtin Master degree

- MicroMasters in Human Rights
- MicroMasters in Marketing in a Digital World
- MicroMasters in IoT

**Pathway Provider** for existing MicroMasters with a pathway into a Curtin Master degree

- MicroMasters in Supply Chain Management with MIT
- MicroMasters in Data Science with UC San Diego
- MicroMasters in Software Development with UBC
- MicroMasters in Marketing Analytics with UC Berkeley

Acknowledgement: Adapted from presentation of Prof Vanessa Chang, Director, Learning Innovations, Curtin University, June 2018
Disruptive Innovation and Digital Shift in Learning and Teaching

Online Learning and Flipped Classroom
Flipped Classroom

• Not entirely new idea – some (especially humanities) disciplines have long set reading before class using the book as “learning technology”

• 2007, Bergmann and Sams recorded power points and posting online for students who missed class

• The flipped model puts more of the responsibility for learning on the shoulders of the students while giving them greater impetus to experiment.
Deep Learning in a Flipped Classroom

Anderson and Krathwohl (2001)

Complex (deep learning)

Simple

Traditional Classroom

Out-of-class (after class)

In-class

Flipped Classroom

Out-of-class (before class)

In-class

CREATING

EVALUATING

ANALYSING

APPLYING

UNDERSTANDING

REMEMBERING

Curtin University Malaysia
Shifting the Lecturer’s Role

• A facilitator, not a lecturer
• Student-Centred Learning approach
• Active engagement in class
• Motivating students to learn
• Teach students learn how to learn
Disruptive Innovation and Digital Shift in Learning and Teaching

Teaching and learning beyond the classroom
Distributed Learning

Distributed learning is a general term used to describe a multi-media method of instructional delivery that includes a mix of Web-based instruction, streaming video conferencing, face-to-face classroom time, distance learning through video, or other combinations of electronic and traditional educational models.

Although distributed learning can be executed in a variety of ways, it is consistent in that it always accommodates a separation of geographical locations for part (or all) of the instruction, and focuses on learner-to-learner as well as instructor-to-learner interaction. Corporations and universities are using and promoting distributed learning for staff development, technical training, and advanced-degree coursework.

Source: whatis.techtarget.com
The many forms of distributed learning

- Opportunities for new student groups to take qualifications
- Opportunities for students at educational establishments to take courses
- Temporary study outside the school (at home, in a hospital, during a period of on-the-job learning etc.)
- Taking of courses by individual students from other educational establishments
- Exchange or acquisition of teaching from other educational establishments
- Utilisation of information networks/digital services in face-to-face teaching

Source: Distributed learning in the Nordic Countries and Canada, Arnór Gudmundsson et. Al, 2012, European Journal of Open, Distance and E-Learning
Modes of Delivery and Teachers Centred vs. Learner Centred Approach

![Diagram showing modes of delivery and teacher-centred vs. learner-centred approach. The x-axis represents face-to-face, hybrid/blended, and virtual learning environment. The y-axis shows increasing learner-centred approach.](image-url)
Teaching in a Distributed Learning Space @ Curtin
Distributed Learning in Action – Group Formation
Distributed Learning in Action - Project discussion – via Skype
Distributed Learning in Action - Case Study Discussion
Distributed Learning in Action - Project Presentation
Our Experiences @ Curtin Malaysia

- Wireless Data Network
- Conservation Biology and Sustainability
- Retail Marketing
- Environmental Impact Assessment
- Petroleum Engineering
Curtin University DL: Objectives

1. An enabler of international experience, (students maximize the benefits of their engagement), gain skills beyond those that a traditional classroom permits.

2. Enables students to experientially connect and acquaint themselves with a culture they are initially unfamiliar with.

3. Train students in understanding cross cultural differences and therefore develop their cultural intelligence.

4. Be responsive to change and participate in an environment that promotes adaptableness, in an effort to shape them as global citizens.
DL Preparation

- Instructors regular meet-up sessions
- Workload distribution (between instructors)
- Discussion on how it can be run collaboratively across campuses
- Do research on DL delivery
- Pedagogy change
- Change in assessment
- Marking of assessment
- Timetable slot
- BYOD concept
- Technology support
Challenges

**Variations**
Student (stage anxiety, distraction)
Technology

**Adoption Resistance**
Mindsets, attitudes, etc. (Duus and Corray, 2014)

**Cultural differences**
Group work

**Students’ Participation**
Limited use of virtual collaborative platform in communicating
Incorporate social networking practices in teaching

**Instructors’ Workload**
Designing, organizing, delivery, feedback reflection
Benefits

• Offers a platform to work actively across cultures
  • Enhances students’ cross-cultural competencies & builds appreciation of other cultures (21st century skills);
  • Reduces prejudices towards different cultural groups
• Improves students’ abilities in collaborating internationally
• Improves their ability to engage with different practices, working styles and approaches
• Develop skills to evolve and adapt
• Increased confidence in communicating and working with people from different backgrounds
Benefits

• Delivery relevant to and beneficial for **future employment**

• **Better quality** projects, infused with **creativity**, **significant command over application of theories**.

• Better executive **decisions**

• **Responsive to change** and participate in an environment that promotes adaptableness, in an effort to shape them as **global citizens**.
Benefits to Instructors

Basis for Collaboration
Sharing responsibilities and building relationships between the two instructors

Enhance Collegiality
Work as a team for enhanced professional practices (reflection, “specialised insider knowledge” of local culture) and our own learning

Scholarship of L&T
Research opportunities

Stronger Pedagogy
Improve student learning experiences
Staff Development in a Distributed Learning Space @ Curtin
One reason people resist change is because they focus on what they have to give up, instead of what they have to gain.
Students learn successfully if teachers teach successfully

THANK YOU

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