Impact analysis of using OpenCourseWare to flip the classroom – TMU examples

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Learning Technology in TMU

- IRS
- Self-recording tools
- E-classrooms

Blended Learning Environment

In-class
- synchronous

E-learning
- asynchronous

Tele-Conferencing
Webcast

LMS
Podcast
OCW
TMU OCW Site

- Installed on 2007/7
- Ubuntu 4.1.2
- Python 2.4.4
- Zope 2.9.6
- Plone 2.5.1
- eduCommons 2.3.1

http://ocw.tmu.edu.tw
2014/2: 82 courses
Current Status in TMU

- **Colleges & programs**
  - 7 colleges
  - 13 undergraduate programs + 24 graduate programs

- **Students**
  - Mostly medical or health science majors
  - Approx. 6000 students/year
  - Unders vs. graduates: 2:1

- **Courses**
  - More than 1400 courses/semester
  - *Center for General Education*: >250 courses/semester
Courses Using Opencourseware in TMU

- Undergraduate course
  - TMU: Basic Computer Concepts
  - Harvard: Computer Science E-1
  - Since Fall, 2007

- Graduate course
  - TMU: Health information systems to improve quality of care in resource poor settings
  - MIT: Innovative in Global Health Informatics
  - Since Spring, 2012
Basic Computer Concept
[Course Topics]

Introductions to:

- Numbering system & binary logic
- Programming language & data structure
- Multimedia
- Network & WWW
- Computer hardware
- Operating system
- Network security
Computer Science E-1: Understanding Computers and the Internet

- Harvard Extension School
- Filmed in Cambridge, Massachusetts
- Newest updated video: 2012
- Instructor: David J. Malan et al
Why E-1?

- Full video content in 2007
- THE “Harvard”
- Fits for entry-level undergraduates
- Practical enough
- Interesting

Photo: E-1 video screenshot
Basic Computer Concept
[Flipped classroom design]

Knowledge
- OCW video

Skill
- IT tools intro.
- Useful info. retrieve

Practice
- Group discussion
- Personal reflection
- Team report
## Basic Computer Concept [schedule]

<table>
<thead>
<tr>
<th>Topic</th>
<th>Practice</th>
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</thead>
<tbody>
<tr>
<td>Introduction to the course</td>
<td>Platform function</td>
</tr>
<tr>
<td>Hardware (2 weeks)</td>
<td>Info. retrieve</td>
</tr>
<tr>
<td>Software</td>
<td>Personal reflection</td>
</tr>
<tr>
<td>Internet (2 weeks)</td>
<td>Team discussion</td>
</tr>
<tr>
<td>*Surprise</td>
<td>Team discussion</td>
</tr>
<tr>
<td>Multimedia</td>
<td>IT tools try out</td>
</tr>
<tr>
<td>Security (2 weeks)</td>
<td>Team discussion</td>
</tr>
<tr>
<td>OpenCourseware</td>
<td>Personal reflection</td>
</tr>
<tr>
<td>Team Project Presentations</td>
<td>Team report + peer review</td>
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Platforms & Tools

- Asynchronous LMS: MyTMU, My2TMU, XMS
  - Lecture notes & homework
  - Quiz
  - Survey or Vote
  - Forum
  - Wiki

- Synchronous LMS: JoinNet®

- Content recording: Powercam®
Student Assessment

- Personal essays
- Team activities
- Team project presentation
- Peer review
- Online participation
Evaluation

- Regular course survey (Center for General Education)
- E-learning survey
Students Enrolled

(BCC Course, sampling from 1 semester)

Computer skill (Self-evaluation)

- Normal: 45%
- Good: 39%
- Poor: 9%
- Very Poor: 2%

Oral
- 15%

Pharm
- 10%

Nur
- 8%

PH
- 8%

Other
- 36%

Med
- 23%

Majors

- Total: 100%
Videos students viewed each year
Students’ readings vs. final score

(BCC Course of 2012)
Students’ feedback

- 40% like this course to be an e-learning course. Time-flexibility and activity-diversity are two major benefits.
- Less than 10% of students like the English-speaking OCW.
- More than 90% of students thought that they had learnt and would like to recommend this course to others.
# Student/Faculty Efforts

<table>
<thead>
<tr>
<th></th>
<th>Discussions</th>
<th>Readings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students</td>
<td>17.3</td>
<td>116.3</td>
</tr>
<tr>
<td>Teacher</td>
<td>150</td>
<td>480</td>
</tr>
<tr>
<td>S/T Ratio</td>
<td>8.7x</td>
<td>4.1x</td>
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</tbody>
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Group competition example: using team discussion corner

**Question**
- Post question in team corner
- Assess the answer and give the score
- Calculate total score

**Answer**
- Answer the question in each team corner as quick as possible to get the score for his/her team
- Team with the highest score wins.

Each team has 4 different jobs, assigned to different students.
Students supervised activities by themselves.
Content readings vs. time
(BCC Course of 2012)

- mid-term report
- Group competition
Thank You

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