Optimising ICT for 21st Century Learning

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Part 1

21 Century Learning

What ?

Why ?

How ?
Much of what learners learn today will become obsolete soon.
How much do we know?

How much can we teach?

Total amount of digital knowledge will have doubled every 11 hours by the year 2010.

How many new books do you think are published every day?
Problems faced by Today’s Educators

• Information (both relevant and irrelevant) is in abundance
• Knowledge life cycle is getting shorter
• We are educating people to face future challenges which currently doesn’t exist
Teaching and Learning Today

Are they learning the knowledge and skills they want and need to have?

Are they acquiring the knowledge and skills needed by the employers?
IT IS NOT WHAT YOU TEACH

IT IS WHAT THEY LEARN THAT MATTER

So ... what is Teaching
If we **TEACH** what we were taught yesterday

We **Fail** to prepare them for tomorrow

We need to change our perception about teaching
A teacher is one who makes himself progressively unnecessary.

~Thomas Carruthers

This is in line with the notion of Open and Distance Learning
But ... HOW
Part 2

Optimising ICT for 21st Century Learning
Proposed 21\textsuperscript{st} Century Instructional Approach

1. Apply the Pareto Principle (20-80 rule)
2. Shifting from knowledge provider to knowledge navigator
3. Learners as knowledge constructor
1. **Apply 80/20 Rule in the Instructional Strategy**

- 80/20 rules means that 80% of your outcomes come from 20% of your inputs.
- Applying to teaching, it means that 80% of effective learning comes from 20% of the total instructional effort.
- Thus if we are able to identify the essential 20% effective instruction, it means we reduce unnecessary learning time and increase learning efficiency as well as effectiveness.
Current Mode

• 60 minutes delivery time – but only 12 minutes effective delivery time (80%-20% principle)
• Lecture not repeatable
• Constraints of time and place
• Confined to limited number of students
• Allow real-time guidance

One hour classroom lecture
Converting Classroom Lectures into Internet-Based Lectures

**Classroom Lecture**

**Internet-Based Lecture**
- Flash
- Media Player
- Real Player
- Quick Time
- Streaming Flash Videos
- Pod Casts

- Extracted 12 minutes video presentation
- Synchronise voice with PowerPoint notes
- Add callout
- Include quizzes
- Unlimited number of students
- Does not allow real-time guidance
A Sample Screencast (Internet-Based Lecture)
Another Sample Screencast

Academic Journals/Scholarly Articles
Tools for Creating Internet-Based Lecture

- Techsmith’s Camtasia Studio
- Adobe’s Acrobat Connect Pro
- Adobe Presenter 7
- PowerPoint to Flash Convertor
- Adobe Flash
- Anystream’s Apreso Podcast software
- Tegrity Campus
- Accordent.com's Capture Station
- Sony Fondry’s Mediasite
Camtasia Studio

• **Captures any computer screen activity:**
  – PowerPoint presentations
  – Video and audio components
  – Java Applets demonstrations
  – Software learning tutorials
  – Computer lab assignments

• **Can use web camera to create picture-in-picture**

• **Ideal for creating tutorials for software packages and learning management system.**
How is Camtasia Studio used?

- Record a class lecture to CD
- Pre-record a lecture for later review
- Create Web-based tutorials or demos
- Train remotely
- Record an error path
- Demonstrate a new LMS feature
- Embed videos into help files
- Rehearse & review presentations
Shifting from knowledge provider to knowledge navigator

• Instead of trying very hard to produce the best (such as producing the best module), why don’t we shift the focus: try hard to guide and help them get the best available.
Comparing Existing Model and Proposed Model

**Current Model**
- Printed Module or Digital Module
- Face-to-Face tutorial
- Online asynchronous Tutoring

**Suggested Mode**
- Hyperlinked integrated module
- Internet-based short modular lecture
- Real-time synchronous tutoring
Use of Hyperlinked Integrated Module (HIM) to manage required knowledge enhance knowledge navigation

TOPICS
- Topic 1
- Topic 2
- Topic 3
- Topic 4
- Topic 5
- Topic 6
- Topic 7
- Topic 8

Sub-Topics
- Sub-Section 1
- Sub-section 2
- Sub-Section 3
- Sub-section 4
- Sub-Section 1
- Sub-section 5
- Sub-Section 6
- Sub-section 7

Mini-Internet-Based Lecture
Selected Internet Resource
Learning Objects Repository
Interactive Assessment
The Learner as Knowledge Constructor using suitable learning objects

Use well constructed microworld or suitable interactive learning objects to guide learners in the construction of their knowledge.
# Web-based Learning

## Overcoming the Limitation

<table>
<thead>
<tr>
<th>F-2-F Teaching</th>
<th>Web-based Learning</th>
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</thead>
<tbody>
<tr>
<td>• One (teacher) – Limited no. of learners</td>
<td>• Unlimited number of learners</td>
</tr>
<tr>
<td>• Constraints of time and place</td>
<td>• No constraints of time and place</td>
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• Teacher can see the learner’s work and provide real-time guidance

• Guidance from remote and teacher “‘CANNOT SEE” what the learner is doing.
we should always caution ourselves

Don’t Use Technology just for the sake of Technology

Wrong use of Technology brings more Harm than Good
Thank you