Revisiting Retro-Technology to Extend Educational Opportunity to Teachers in Remote Schools

by:
Teo Hui Thian, Jimmy
Assoc Prof Dr Widad Othman
Shawira Abu Bakar
OPEN UNIVERSITY MALAYSIA
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Extension of:

Objectives:

1. To offer new learning model for ‘pedalaman’ teachers
2. To add value to OUM- BPG SMP (Bachelor of Teaching) Programme
3. To build new capacity for OUM by offering cross-platform learning model.
CURRENT LEARNING MODEL

Self Managed Learning

Online Learning

Face-to-Face Interaction

OUM Blended Learning
The Open and Distance Learning (ODL) mode is used because of its three key characteristics: accessibility, flexibility and learner-centredness:

**Accessibility**
- Accessible to people who cannot attend regular classes due to social, structural or personal reasons.
- Not limiting: people with disabilities can have access
- Learning resources adaptable to different media

**Flexibility**
- Physical flexibility to study at a time and place that suits learners.
- Educational flexibility to study in a manner appropriate for learners’ needs.
- Content, sequencing and structure of ODL programs are developed to support learners and are not strictly fixed like conventional academic institutions.

**Learner-Centredness**
- Provides education and training in a way that prioritize learners’ needs, rather than institutional convenience.
- Enables learners to pursue their studies in a way that is appropriate for their circumstances, learning goals and styles.
- Provide good quality learning materials in appropriate, accessible media, and gives sufficient support to ensure learners have a good chance of successful learning.
...with the emergence of fast, intelligent, inexpensive and high capacity learning technologies the practice of open distance learning, in the developed world, has been moving towards the 4th and 5th generation technologies where multimedia courseware embedded in a comprehensive web enabled learning management systems provide both synchronous, asynchronous and highly interactive learning environments.

-Dhanaraj, 2009-

The remote teachers faced three constraints in their endeavour to further studies:

- Their location in the remote areas which limits their mobility to learning centres for the fortnightly face-to-face tutorials;
- Their teaching duties which did not permit them to leave their young students during school days; and
- Inaccessibility to the internet.
TED* Malaysia categorises the ‘remote interior’ (*pedalaman*) into 3 categories.
Paris –Dakar Rally
TUPE Model for ‘pedalaman’ teachers:

To address these constraints and challenges OUM’s blended learning model was further fine tuned into the TUPE Model:

- **Tutorials**
- **Revision**
- **Examination**

Teachers from the ‘pedalaman’ will be assigned to the nearest Teachers Training Institute (TTI) and study during the school holidays. Teaching and learning therefore is fully face-to-face during this time.
TUPE LEARNING MODEL

Self Managed Learning

F2F & Online Learning
within school holidays

Online Learning

Face-to-Face Interaction

OUM (Pedalaman) Blended Learning
Challenges

TUPE Model is still restraining:

1. Access to ‘pedalaman’ students is limited to the time they are in the TTIs.

2. TUPE (Tutorials-Revision-Examination) overloading students.
fast, intelligent, inexpensive and high capacity learning technologies... Dhanaraj

- Infrastructures should be equally fast, intelligent and high capacity....
- except these are not available in the interior learning ecosystem.
- So how do we move forward?
THE WAY FORWARD IS BACKWARDS
TWO-WAY RADIO/ SW RADIO

How?

<table>
<thead>
<tr>
<th>Handheld</th>
<th>Mobile</th>
<th>Base</th>
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1. Meets current needs
2. Cheaper to set up.
3. Reliable and able to reach remote places.
4. Able to run with minimum infrastructures.
5. Successfully used in these economies: Australia, Canada, India etc.
6. Can be easily upgraded to transmit/ receive data.

Why?
How it works?

Wide range of radio communications technology: SW, VHF, UHF and Microwave

Travelling time from Transmitter (TX) – Ionosphere (reflecting layer) – Receiver (RX) usually a small fraction of a second.
The first radio broadcasts were made from the Royal Flying Doctor Base in Alice Springs, Northern Territory (NT), in 1951.

Radio was the backbone of communication from the commencement of school operations in 1951 until 2004.

With the development of other technologies the school now makes extensive use of Satellite Technology.

The school runs its own ISP (Internet Service Provider). For those families that do have IDL they have the option of connecting to the school via their own computers and modem. This allows transfer of work, exchange of ideas and support of learning in a manner that is quicker than traditional mail services. The speed and reliability of such connections is still far from what people in major urban centres would experience.

Most families now have access to television. The school conducted trials of direct television lessons beamed into the classroom in 1992. This was via satellite transmission but costs prohibited this being an ongoing facility.
Case study

Proposed experimental link up: Kuala Lumpur – Saliku, Keningau

Voice only

TX

RX
From its first steps in Montreal, Canada, in 1978, to its current AX25 protocol implementation established in 1982 by the Amateur Radio Relay League of America, packet radio provides the means through which computer data may be transmitted, error free, on the radio frequency spectrum. It represents one of the fastest growing areas in amateur radio today.

In short, packet radio replaces the telephone line with a radio channel. Rather than connecting the modem to a phone line, a specially modified modem known as a Terminal Node Controller (TNC) connects the computer to the microphone and speaker circuits of a radio transceiver.
Future Future Upgrade 😊

Earlier:
FM
SW
VHF
UHF
Microwave

Current:
XM

Two Hughes HS 702 satellites beam XM directly to listeners.
XM uses the most powerful commercial satellites available.

Supplemental terrestrial repeater.

Ground Station: Washington DC Area.

Choose from up to 100 channels of programming.

From its state-of-the-art studios and uplink facility in the Washington, DC area, XM Satellite Radio will beam up to 100 channels of digital quality music, news and entertainment directly from two powerful satellites to people from coast to coast in their cars and at home. A small antenna and AM/FM/XM car radio, home audio system or portable radio will receive the signal.
PROPOSED LEARNING MODEL

Self Managed Learning

CD-Roms/ Memory Cards/ External Hard Disk

Over-the-air interaction

‘Pedalaman’ Blended Learning

Full Semester

Proposed
SURVEYS

Surveys was carried out to gather data/ find out:
A. Learners’ background
B. Infrastructures
C. Feedback on current mode of learning
D. Readiness for new learning mode

Surveys was carried out at 2 centres in Sabah:
1. Keningau – 203 respondents
2. Tawau – 31 respondents
Background
C16. Are you satisfied with the current mode of learning?

C17. Do you need help with your learning?
D20. Would you like to be able to contact OUM/your tutor more frequently?

D21. Would you like the learning station to be nearer you?

D22. How open are you to a new mode of learning?

D23. Would you like to enrol in the same SMP Biasa semester instead of this current SMP Pendalaman arrangement?
While learners welcome the idea of a more reliable and frequent interaction with their tutors and OUM, the need to interact with their peers socially and physically will supersede that.
Self Managed Learning

F2F & Online Learning within school holidays

Over-the-air Support

Online Learning

Face-to-Face Interaction

OUM (Pedalaman) Blended Learning
If you are very interested to provide assistance, collaborate or want to know more about this project, feel free to contact me.

jteo@oum.edu.my

Thank You