Pure Online Learning: Pedagogical, Technological & Human Designs for Greater Access & Success

Formal Education: Technologies for Scaling up ODL Programmes

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INTRODUCTION

Open University Malaysia (OUM) is the first ODL institution in Malaysia to offer a completely pure online programme. The programme called Master of Instructional Design & Technology (MIDT) is accredited by the Malaysian Qualifications Agency (MQA) and it started in 2009 with 21 students from 11 countries. Feedback from MIDT students with regard to the programme is encouraging and we believe this is due to three important design factors, namely, pedagogical, technological and human designs that have been incorporated into the programme. The following quote from Blubaugh (2003), the President of the National Coalition for Technology in Education & Training encapsulate the OUM ideology of pure online learning "Because of what we're learning about the brain, we know that active learning involves putting students in situations where they must read, speak, listen, contemplate, think deeply, write and respond. The full power of technology, combined with the force of a talented teacher, does all this" (p.15).

WHAT IS PURE ONLINE LEARNING?

Pure online learning means learning done completely using the Internet. Usually, a learning management system is used so that learners have access to all the required resources, discussions and assessments in a single sign-on system. However with the advent of technology, many other supportive technology components are being used together with the myVLE and at OUM. This includes the Digital Library, Blogs, Ning-sites, mobile-learning and skype. The opportunity to share information, have in-depth discussions, and insights is regarded as one of the strongest advantages of online distance education (Alessi & Trollip, 2001). Online learning is becoming more popular these days because of its potential for providing more flexible access to content and instruction at any time, and from any place. Apart from that, there is avenue to provide a wide range of learning experiences to learners as advancements in technology has given online facilitators a wide range of technology tools to suit different pedagogical orientations. The range of pure online offerings vary from just using asynchronous tools (email, threaded discussion boards and newsgroups) to using a combination of such tools with video-conferencing and skype calls. Further online learners are also provided with all kinds of content - from interactive learning objects to quizzes online. With such pedagogical underpinnings, its not a surprise that online learners are doing better than their counterparts in conventional classrooms. The following study proves that online learning brought significant learning to learners when compared to traditional learning methods. Between 1996 and 2008, research was conducted to compare online and conventional learning at institutions of higher learning and K-12 settings in the USA and results showed that online learners performed slightly better than students in traditional face-to-face classrooms (Means, Toyama, Murphy, Bakia & Jones, 2009)

A good understanding of a pure online learning environment is presented by Jones (2006) when it is looked at from a continuum of blended learning:

ICT-enhanced	E-enhanced	E-focussed	E-intensive

Figure 1: Continuum of Blended Learning (Jones, 2006)

At the OUM, the range of ICT support is different for the two learning modes namely blended learning and pure online learning. In a blended learning environment, the focus is still on didactic learning sequences, whereby the "lecture" is contained in a self-managed learning print module. The learner's task is to read the module, make sense of it, attempt an assignment question and sit for a final examination to complete the course. Some form of online discussion and face-to-face meetings are given as learning support. Thus in a blended learning environment, the "online" aspect is not as focused as in a pure online environment as seen in the diagram below:

The current Model: Blended to Full Online Learning

Face-to-Face Learning

Classroom Environment
Formal Classroom
Computer Laboratory
Science Laboratory

Number of Meetings
5 or less meetings
5 or more meetings

Teaching Strategies

Online Learning

Resources
Learning Objects
PDF Documents
Microsoft Office
Attachment
Digital Library

Discussions
Asynchronous
Discussion
Forums

Self-Managed Learning
Specially Designed Modules

With support from:
CDROM Courseware
Digital Library
Physical Library
Subject Matter Experts
Peers

Discussion Forums
Podcasts
Wikis
Blogs
Facebook
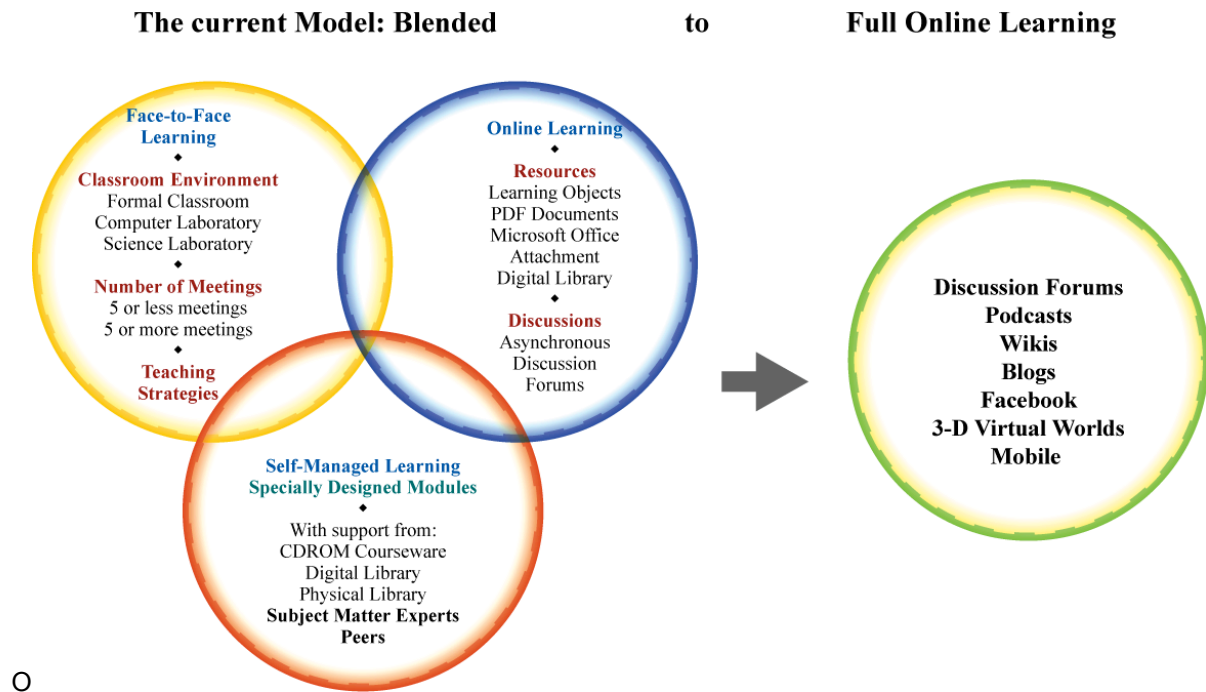**3-D Virtual Worlds**
Mobile

O

Figure 2: OUM's Blended and Full Online Learning Modes

WHAT PEDAGOGICAL DESIGNS PROMOTED EFFECTIVE LEARNING?
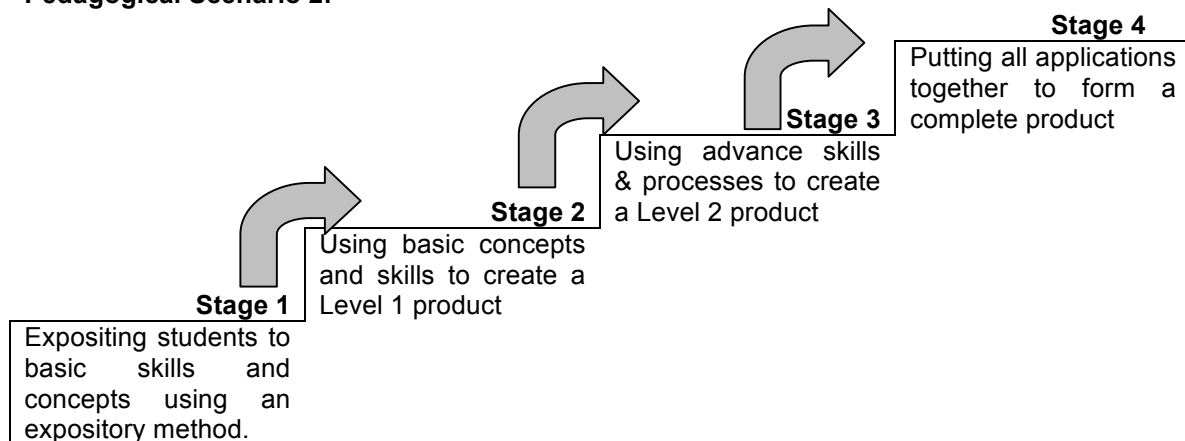
Pedagogically, many learning environments are described based on theories of learning such as behaviorism, cognitivism and constructivisim. Together, these theories form the base for different pedagogical orientations to emerge. The crux of learning is dependent upon many inter-related factors, mainly, the entry level of learners, the type and purpose of content, and the types of learning experiences that learners should acquire. As such, a pedagogical orientation for a particular course, for example, a skills-based course, may start with an expository type of learning (to suit the content and learners) and progress towards active learning where learners take control of the learning. Whilst elements of these theories make up a strong pedagogical approach, here we will describe our pedagogical design using a task-based approach. In the MIDT, a task may be made up of the following: a project, a case-study, a critical review, a series of questions & answers (Q&A), completing a product, demonstrating technology skills and producing a written assignment. Mainly the tasks are aimed at achieving higher-order thinking

skills, cooperative and collaborative learning and content acquisition. A scenario describes a learning activity and the context necessary for its use as well as its pedagogical objectives (preparation, plan of action, and necessary material). The benefits of the use of pedagogical scenarios, as started in Hummel et al. (2004), is that the focus is put on the learning activities that should be done to achieve a learning objective. The essence of a learning activity is that it must have one or more 'learning outcomes' associated with it. Learning outcomes are what the learners should know, or be able to do, after completing the learning outcome; e.g. understand, demonstrate, design, produce, appraise, discuss, etc. In order to achieve the intended learning outcomes there is a "sequence of tasks" which must be completed. Thus it is not unusual to find a variety of pedagogical scenarios within the MIDT as depicted in the following:
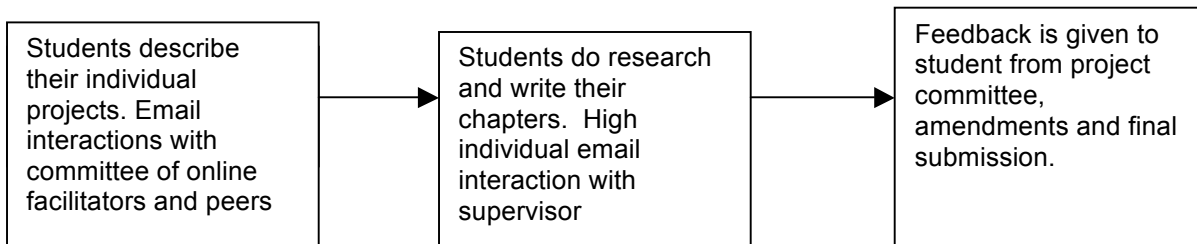
Pedagogical Scenario 1:

Critical Review of Book Chapter Online Discussion Online Folders for Personal Reflections	Group-based Project Small-group online discussions Completion of Project and submission of group assignment.	Given, audio-video clips, engage in higher-order thinking of analysis, synthesis and evaluation of the clips.	Create a product based on concepts and skills learnt.

Pedagogical Scenario 2:

Stage 1
Expositing students to basic skills and concepts using an expository method.

Stage 2
Using basic concepts and skills to create a Level 1 product

Stage 3
Using advance skills & processes to create a Level 2 product

Stage 4
Putting all applications together to form a complete product

Pedagogical Scenario 3:

Students describe their individual projects. Email interactions with committee of online facilitators and peers

Students do research and write their chapters. High individual email interaction with supervisor

Feedback is given to student from project committee, amendments and final submission.

WHAT TECHNOLOGICAL DESIGNS ENABLED EFFICIENT LEARNING?

Well thought-out technological designs are crucial in the access and success of a pure online programme. The following technological designs aided in the smooth implementation of the MIDT programme:
   a. Online application forms

b. Learning Management System + other Web 2.0 Technologies
c. Student databases
d. Digital Library

Well developed online application forms are important for the success of pure online learning as they act as the "virtual" front-desk operators. Similarly, a flexible and reliable LMS which is learner friendly and easily accessible makes student learning easier. Apart from the use of LMS, other Web 2.0 technologies supported the whole online learning experiences of MIDt students and this included the use of Blogs, Ning- sites, Skype, YouTube clips and self generated audio-visual resources. In a survey conducted with MIDT students in mid-2009, the following results were attained with regards use of technology.

Table1: Usefulness of Technological Tools in Implementation of MIDT Programme

	Very Useful (%)	Useful (%)	Slightly Useful (%)	Not Useful (%)	Did Not Use (%)	Total (%)
Blog	50	33	17	0	0	100
E-mail	58	25	0	0	17	100
Podcast	18	9	9	9	54	100
YouTube	25	42	8	0	25	100
Digital Library	84	8	0	8	0	100
Discussion Forum	55	21	6	3	15	100

N=12

The technological applications that were designed to suit the pedagogical scenarios can further be described using Laurillard's five principal media forms (Narrative, Communicative, Adaptive, Productive, and Interactive) (Laurillard, 2002, p.90). Narrative media basically "teaches" and this media is most useful when learners need a step-by-step understanding of concepts, principles or skills. Taking an example, in the Instructional Technology Development Tools course, learners were taken in a step-by-step manner on the skills needed to learn tools using self-made video, supported by skype calls. Further, interactive and communicative media were used when students were required to share and describe their understandings and experiences of the content and skills learnt, using online discussion forum in the LMS. Personal email interactions were also used to tackle students who were not so familiar or adept to tools. Finally productive media is used when students had to create their own products. The following chart shows MIDT students' interactions using the various technology forms for this course:

Student preference

No of Participants

- Email response %
- Skype %
- LMS %
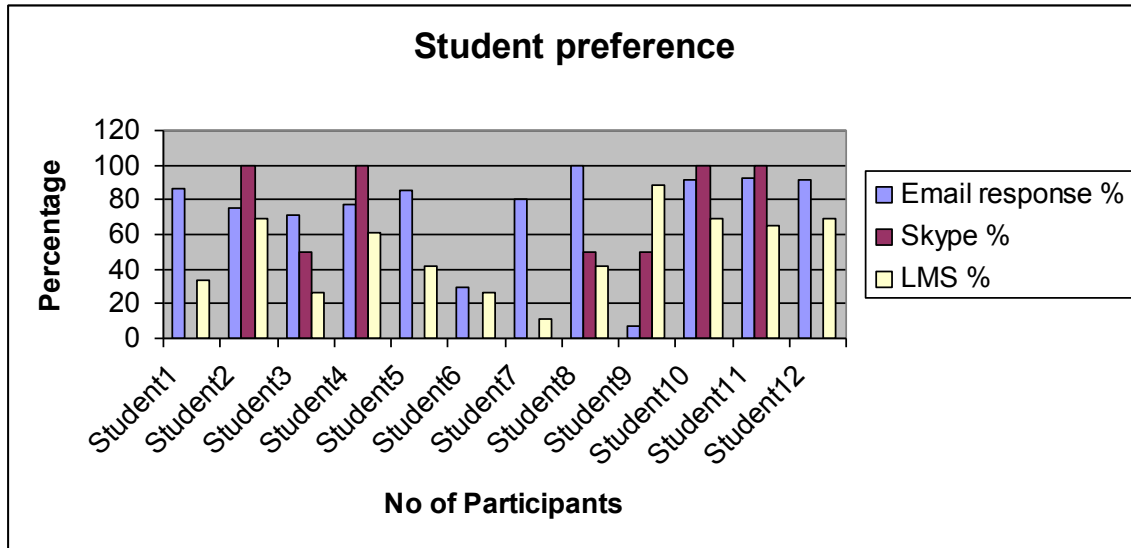
WHAT HUMAN FACTORS SUPPORT LEARNING?

OUM's experience shows that four categories of people make or break an online programme, namely: the programme head, the online facilitators, the technical support staff and the administrative staff. Surrounding all these people is dedication and almost instant attention to issues raised. The programme head plays the central role and connects all players- the students, facilitators and support staff. A dedicated, efficient and effective programme head enables greater success of learning. Online facilitators who have the following traits enable more efficient and successful learning among learners. They have absolute expertise in the content area, has a keen interest in learning about technology aids, is a competent and dedicated educator, go the extra mile in assisting learners to achieve their learning aims. Apart from that, an online MBA programme from the University System of Georgia called WebMB*A,* boasts a high retention rate with an average of 30 students per course. This high retention rates are attributed to the extensive faculty interaction with their students, via the use of both the internet and phone (Bocci et al 2004). Research suggests that the minimum percentage of faculty interaction in online classes should vary between 10% to 25% in order for students to achieve an effective learning session. At Open University Malaysia, a 30% online discussion interaction is the norm

A crucial trait needed in the technical and administrative staff is their generosity with their time to help solve technical and administrative matters. An email interaction is taken as equivalent to a phone conversation in an online environment. As such, crucial matters need instant responses and this gives the programme a greater edge in terms of the implementation. This will ultimately lead to greater learner satisfaction and retention, which is a key feature of any good educational programme.

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CHALLENGES AND RECOMMENDATIONS

As in any learning environment, online environment has its own set of challenges, issues and concerns. The following challenges and recommendations are given:

a) Facilitation Challenges

One of the most pressing challenges is in having a dedicated and motivated online facilitator. As learners and facilitators often have not met one another in a pure online environment, this trait is a rare commodity. In a pure online environment, the nature of communication can be limiting and void of visual cues and as such it increases the challenges of keeping tabs on individual learner's learning process. The online facilitator thus needs to be more dedicated and consistent in seeking out students so that the ultimate learning outcomes and experiences are enjoyable and successful.

Apart from dedication and consistency, the online facilitator also needs to engage the learners by pacing interactions suitable to the time constraints faced by the students, use appropriate questioning & feedback skills and provide direction & support to the learners.

Further it is important that online facilitators have a positive attitude to online facilitation and an ability to be innovative and experimental.

Recommendation: From our experience, it is advised to have at least 2 facilitators on one course and ideally these facilitators have a combination of the above characteristics so they can work as a team and support each other. Further, students can also help lead discussions. The quote below exemplifies this:

> Teacher workload in responding to individual students online is an often quoted concern. "Co-construction of meaning" both in face-to-face classes and online is one way of dealing with this and breaking away from the student-teacher dependency model i.e. encouraging collaborative work and student-student or group discussion (Sherry et al. 2001).

b) Operational Challenges

One of the biggest challenge currently facing OUM is the operational challenge. This is due to lack of experience in handling a pure environment and a mind-set issue. In a blended learning environment, there is more inter-dependence between the learning centres and head-quarters. Also the current staffs are too used to working in a blended mode and tend to apply similar practices to online environment. There is minimal dependence on technology in a blended mode, however in a pure online mode, dependence on technology is high. As such the technological advances must keep up with the demands of online learning. These processes include all matters from registration, to finance to examinations.

Recommendation: More experienced staff and better technological support is needed. Apart from that, a change in mind-set is important from operations in blended learning to pure online learning.

c) Different Learner Preferences and Needs

Online engagement to a degree has to be engineered. That is, it needs to be part of an intended design. For example, you cannot expect students to engage in meaningful discussion on a particular topic if each is at different stages in the learning program. Also, group work and ongoing dialogue are best maintained if there is a common goal or purpose.

Recommendations: Students need to be encouraged to take responsibility for themselves - and they do not take to this readily.

d) Communication Issues

The major mode of communication is written text, and it takes a considerable amount of time to communicate in text format. When time is compromised, misinterpretation of text happens. Apart from mis-interpretation, dealing with silences is another communication issue that is much dreaded by the online community.

Recommendations:

Probably, more research can be conducted on how voice can be converted to text readily and in a cost efficient manner. This will save much time both for the students and facilitators. Other more readily communication tools such as skype should be highly used.

CONCLUSION

At one time it was popular for ODL experts to talk about the "blended mix", now it is crucial to talk about the "online mix" and this will differ in what goes into the "blender". In a blended environment, the mix consisted of the various ways to engage learners, however in an online environment, programme heads may have to look at the pedagogical, technological and human mixes to enable more successful and accessible learning.

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