

Symposium: Sharing findings of a continuing professional development research project: e-CPDeIT: Vision 2020 Project



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Background of the Project

- The advancement of technology necessitates corresponding innovations in teachers' practices to make continuous progress to facilitate students' learning
- lack of support to help teachers move in that direction.
- National Research Council (2007) recognizes and acknowledges shortcomings -
- “ teachers need appropriate modern tools to take advantage of online programmes and it is inaccurate to assume that teachers have the necessary computer skills and equipment to be able to embrace online technology entirely on their own”

The birth of e-CPDeIT: Vision 2020

- a group of researchers from **3 universities**: The National University of Malaysia (UKM), University of Nottingham, UK and University of Sabah, Malaysia
- Embarked on a project based on a **partnership model for online professional development**
- to **support the professional development of a group of teachers from five Malaysian Smart Schools through online means and to promote the use of ICT in their teaching practices.**

The e-CPDeIT: Vision 2020 project

- aligned with the key objectives of Vision 2020
- seeks to implement learner-centred approaches to e-learning within all schools by the year 2020.
- Phase 1 - to establish online **Communities of Practice (CoPs)** among **Mathematics, Science and English teachers** from **five Smart schools**.

The e-CPDeIT: Vision 2020 project.. con't

- based on UK-based *Improving the Quality of Education for All (IQEA)* project (Hopkins et al. 1996).
- initially set up by a team of researchers at the **University of Cambridge Institute Of Education** in the early 1990s.
- Aim - to “*produce and evaluate a model of school development and a program of support that strengthens a school’s ability to provide quality education for all its pupils building on existing good practice*” (Ainscow et al. 1994, p. 5).

The Preliminary Study

- The eCPDeIT model – piloted in 5 Smart Schools – around Kuala Lumpur
- Each school – 4 teachers (of English, Mathematics and Science) – divided into 3 eCoPs respectively.
- Two eCPD activities:
 - 1) Blogging – post 2 descriptions – successful & less successful lessons
 - 2) ViP (Virtual Interactive Platform) – uploading video clips

Paper 1

- **Blogging in enhancing teaching and learning:
A qualitative case study of Science teachers
in 5 Malaysian Smart Schools**

By

**Lee Kean Wah, Pramela Krish, Thang Siew
Ming, Radha Nambiar**

Background of Study 1

- Teaching and learning methods have evolved with the current developments in Information Communication Technologies (ICTs).
- ICT is not only seen as a provider of knowledge but a creator for **professional development of teachers.**
- This presentation - is based on the findings of a research undertaken to study **the effectiveness of this technology in promoting a community of practice among teachers.**

Background of Study ...cont.

- Traces the **teaching experiences** shared by a group of **Science teachers** from **5 Smart schools** about their **weblog activities**.
- **Data** were elicited via **blog entries** supported by **focus group interviews** with these teachers.
- The blog data were analysed using the **Principles of Teaching and Learning adapted from Project 2061- Science for all Americans (1990)**.

Blog Entries

- This involved the online sharing of effective teaching practices among the teachers by **reflecting and sharing their best lessons** through their blogs and **responding to comments** posted by other team members.

Literature Review: Focus on

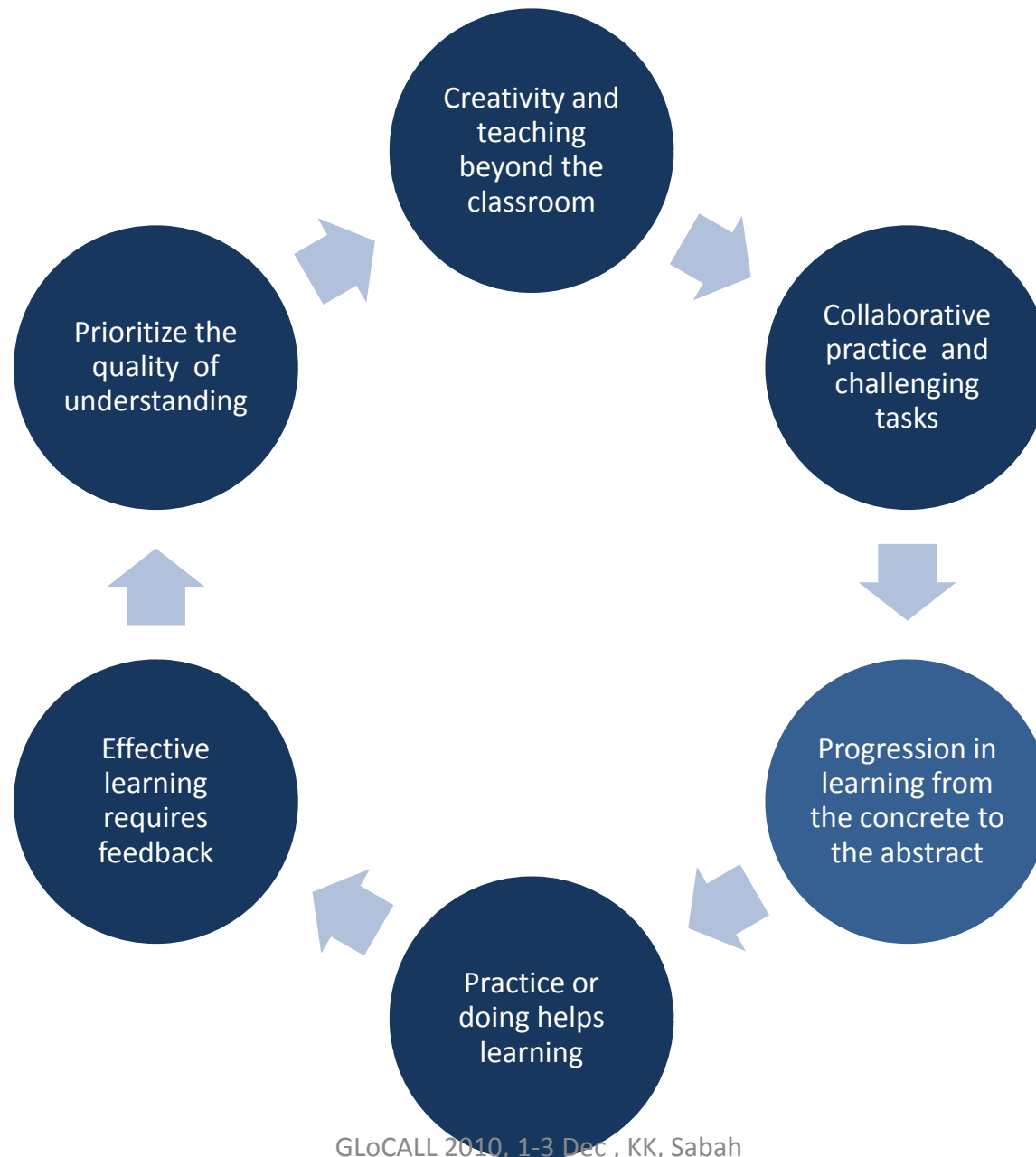
- 1. Science curriculum and relevant principles in teaching and learning Science***
- 2. ICT and the teaching of Science***

Science curriculum and relevant principles in teaching and learning Science

- Malaysia - Science education for secondary schools is designed to ***provide students with knowledge and skills in Science to develop thinking skills, and strategies to enable them to solve problems and make decisions in everyday life*** (Ministry of Education Malaysia, 2002).
- **A continuing professional concern - employing different ways to present and teach Science and Mathematics**
- **move away from the traditional approaches**
- **embrace teaching strategies that are more students-centred** - Effandi Zakaria and Zanaton Iksan (2007)

Project 2061

- Teaching Science in Malaysia NOT dissimilar from the sentiments of Project 2061
- **Project 2061** (American Association for the Advancement of Science, 1990), **Science for All Americans** - the need to place greater emphasis on *“what students should learn”*, and *how Science ought to be taught.*
- Developed a number of useful principles for good Science teaching
- Drawn from “a growing body of **research knowledge about the nature of learning** and **on craft knowledge about teaching**”



Principles

- 1. Progression in Learning from the Concrete to the Abstract**
- 2. Practice or doing helps learning**
- 3. Effective learning requires feedback**
- 4. Prioritise the quality of understanding**
- 5. Creativity and teaching beyond the classroom**
- 6. Collaborative practice and challenging tasks**

2. ICT and the teaching of Science

- Blog discussions effective in **encouraging reflective learning** (Chen et al. 2005), and **promoting the shift from surface to deep learning** (Bartlett-Bragg, 2003).
- the **immediacy and commentary-based systems** of blogging lead **to reflection and analysis and contextualisation** of learning via hyperlinks - Ferdig and Trammel (in Williams & Jacobs, 2004)

2. ICT and the teaching of Science

- From a teaching and learning perspective, **blog discussions** have been proven to have the potential to **significantly alter teachers' perceptions of themselves** as education professionals and their **perceptions of the power and validity of their ideas** by allowing them to **respond more creatively** (Oravec, 2003) and to **interact** with participants **beyond the classroom** context (Baim, 2004).

- A local research study by Malachi (2006) on trainee teachers' writing of blogs revealed that **blogging helped** them in their **professional development** and analysis of the blogs showed **positive reflections of their practices**.
- However, there seems to be a **dearth in literature** with regard **to the potential and possible roles of blogs** in the **professional development of Science teachers in the Malaysian context**.
- Our study hopes to address this concern.

Theoretical framework

- Grounded on the theories of **constructivism** and **community of practice**
- Teachers' **personal worlds** (reflective and meaning focused), as well as the **shared world** (collaborative and knowledge focused), if **associated** with a **purposeful and structured educational environment**, provide a worthwhile **learning experience** for **professional development**(Garrison et al. 2000)

Research Questions

The study was conducted to investigate the following research questions:

- ***1. To what extent did the blog activities lead to the sharing of principles of teaching and learning among the teachers?***
- ***2. What were the challenges faced in using blogs for teacher professional development?***

Participants in this study

Profile of the teachers

School	Teacher	Gender	Form	Subjects	Experience
A	T1	Female	4, 5	Chemistry	28 years
	T2	Female	4, 5	Physics	11 years
B	T3	Female	2, 5	Science	6 months
C	T4	Female	6	Biology	10 years
	T5	Female	4	Biology	5 years
D	T6	Female	1, 2	Science, Mathematics	2 years
	T7	Female	1, 4	Biology, Science	4 months
E	T8	Female	3, 4, 5	Chemistry	14 years
	T9	Female	1, 4, 5	Science	6 years

Data Analysis

- Data elicited were sorted into these categories and analysed together with supplementary data from other sources.
 1. Progression in learning from the concrete to the abstract
 2. Practice of doing helps learning
 3. Effective learning requires feedback
 4. Collaborative practice
 5. Creativity and teaching beyond the classroom
- The purpose of this analysis is to find out to what extent the sharing among the teachers fits into the above categories explained in Figure 1.

Results and Findings

- ***1 Progression in Learning from the Concrete to the Abstract***
- Excerpt 1 shows the teachers sharing instances where they engaged their students in meaningful activities that would introduce them to concepts in a way that the students could easily understand and digest, thus moving learning from concrete to abstract.

Excerpt 1

Occurrences of Progression in Learning from the Concrete to the Abstract

The most interesting topic Force and Motions (Relationship between Pressure and Surface Area). In this topic, students learned how to relate the pressure and surface area by doing a meaningful activity like build the parachute. In this activity ... they can use their ideas involving concepts that they was learned before....

In this lesson, they observed ... how the concepts were working.

I always ask students to apply the concepts by doing simple activities and relate to their life.

The interactive modules also help my lesson in my class. By using this module, especially the simulation, it will give my students more understanding.

Teacher 6

... i'll make sure that my lesson is as simple ... i'll explain by using simple english to make sure they can understand. With the help of technology i will show them all the diagram, videos, pictures, animation and etc so that they could see the process clearly....

Teacher 4

2. Practice of doing helps learning

- Excerpt 2 shows the manner in which Teacher 5 shared how she helped her students to understand the functions of the eyes by getting her students to dissect a cow's eye in groups following a video presentation.

Excerpt 2 - Examples of how practice of doing helps learning

What i did is, i divide my students into 6 groups and ask them to bring a cow's eye for each group. Then they will follow the video that i have downloaded as i show i on the screen by using LCD projector. I will paused and play as they did the dissection to make sure they are on the correct path.

This was different than other lesson because they have an experience to see the real structure of an eyeball. Humans eyeballs have the same structure as the cows eyeball. So in order to understand the real structure in theoretically they get to fee and see by themselves. This will improved the level of understanding of my students. The reason this lesson successful is because of they get the experienced t see the structure of an eye and relate it with the functions for each part of an eye.

- ***3 Effective learning requires feedback***
- There was no evidence of teachers sharing how to give feedback to their students.
- However, there was clear evidence of feedback given by the teachers to support each other as indicated in Excerpt 3.
- Teachers 3 and 4 praised the teachers who posted useful ideas.
- Teacher 1 went further in giving a counter suggestion to further enhance the lesson by presenting their mind maps via powerpoint presentation.

Excerpt 3

Examples of feedback that can help effective learning

It is interesting. Your suggestion to do the simulation (the force of tug-of war) interesting too. I can use the idea to teach my students.

Congratulations! You succeeded to teach your students very well.

Teacher 4

it was an interesting lesson to have students involved in a hands on experience! and of course with the assistance of the technology, it can help us to explain complex things to students even clearer. I bet that your students find this experiment to be the most enjoyable class and hopefully it will help them remember well too :)

Moderator's comments to Teacher 5

- ***4 Collaborative practice***
- The blog postings in Excerpt 4 show the teachers sharing ways to initiate collaboration among the students in the class.
- Teacher 4 explained how she tried to introduce self-access learning and project based learning by getting students to work in small groups.

Excerpt 4

Examples of how teachers try to promote collaborative learning among their students

... Based on self-access and project-base-learning approaches, I always ask the students to get into small groups and each group is responsible to complete a special task, one group entitle to one organelle. Teacher introduces, give the main aspects and the basic concept of organelle only. Then, give clear instruction/ guidelines and provide standard template for everybody. Enough time is given to prepare the hand-out and power point presentation. all students have the diagrams/ characteristics/functions of all that 14 organelles. Again, indirectly, I inculcate the interest and encourage scientific communication in the class. Of course, there is a room for improvement; I start with giving 'organelles quizzes' before move to the next subtopic.

Teacher 4

- ***5 Creativity and Teaching Beyond the classroom***
- Teachers shared creative methods used by them in their teaching.
- As illustrated in Excerpt 5, Teacher 4 used creative tools like diagrams, mind maps and interactive courseware and
- Teacher 1 exchanged roles with her students and that resulted in students giving very creative powerpoint lessons.
- She also related stories to liven up a class of bored students.

Excerpt 5

Examples of how teachers try to make her lesson creative

I decided to exchange role where students got into groups of four and presented me with powerpoint while I sat at the back and listened. They came out with colourful, well prepared powerpoint presentation and took pride in explaining their presentation. In fact one of the students brought a digital camera to video taped their presentation. There were so much fun as the students were free to question the group that did the presentation. After the presentation I replayed the video for students to see them in action. I believe that at times we must break monotony and let the students show their talent

Teaching chemistry to rural students back in the nineties was a real challenge to me because most students were not interested to come to school. It was a chore and chemistry seemed alien to them. So what I did then was to focus on being friendly and most of the time end up telling them stories instead of chemistry

Teacher 1

Excerpt 6

Examples of teaching beyond the classroom

I taught on the topic of 'Balance of Nature' on that time. The aims were to identify the organisms in a food web and the role of food webs in maintaining the balance of nature.

First, I brought the students to the school gardens to look for various organisms such as insects, plants or other living things. They had to list down all the living things that can be foundin the class, they built food webs based on the data that was collected. After that, we had a discussion on how the food webs play the role in maintaining the balance of nature.

Teacher 9

Discussions

- **Does blogging actually lead to sharing of good teaching and learning practices?**
- To a large extent – it did lead to the sharing of teaching and learning practices.
- The sharing of practices can be used as a platform to discuss and share practices among teachers from different schools which otherwise would not be possible due to geographical differences.

Discussions ...con't 2

- **Did the blogs studied here demonstrate a community of practice?**
- It did, albeit at an infancy stage.
- The blog was a place for these teachers to voice their doubts, struggles, discomforts, and successful and unhappy teaching and learning experiences.
- Getting together in a group armed with the same concerns for Science teaching and learning enabled these teachers to identify the lingering questions, work together to think through the questions, and push their thinking further as a group.

Discussions ...con't 3

- **What are the opportunities afforded and challenges faced in using blogs for teacher professional development?**
- Focus group interview data – revealed a number of challenges, ranging from difficulty in accessing computers to the lack of time for active engagement.
- One of the most revealing findings - concerns the teachers' reluctance to accept an audienceship for their written diaries

Discussions ... con't 4

- Overall –findings indicate that blogging has **succeeded to a certain extent** to encourage collaborative efforts among teachers to share their best practices
- However, further probing via focus group interviews reveal that the teachers exhibited **concerns relating to their awareness, readiness and competency** in embracing the changes expected of them.

Conclusion

- Blogs can be used as an **extra tool** for Science teachers to engage in computer-supported **communication** that resulted in better teaching and learning.
- Blogs useful to **break down** the “firewall around the classroom” , **open lines of communication**, and help teachers to become **reflective practitioners**

Conclusion...con't 2

- Making blogs available is unlikely to be enough to motivate teachers to make full use of these resources.
- Strategy to encourage teachers to join in and stay in the conversation needs to be determined and clearly worked out.
- Sharing of practices and reflection via blogs does not happen magically, as with any knowledge, skill, or disposition, teachers must acquire, and reflective blogging must be promoted and supported.