Professional development in e-Learning sustained through a community of practice at the Durban University of Technology
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Abstract: The goal of this study is to transform education through blended learning and cross-disciplinary problem-solving at a contact university of technology in South Africa. The purpose of this paper is to reflect on Pioneers Online, a community of practice sustained through a professional development programme offered to lecturers at the Durban University of Technology (DUT).

During the eighth annual community launch, we examine this practice once more in the kaleidoscope of action research. The visual representation of our vision which comes to mind is a mandala, for its guiding principles of interconnectedness, interdependence, enquiry and transformation.

In this paper the author examines how the cultivation of a mandala has taken shape, in the process of refining the concept and curriculum of Pioneers Online. The core question raised in this paper is: How does one achieve in one curriculum, the equally important goals of interconnectedness, interdependence and transformation on the one hand; and on the other, teach lecturers skills, and meet programme certification requirements?

This investigation is informed by the input of the online pioneers who have done the DUT short course in web-based learning, pitched against an elective of the Post-graduate Certificate in Higher Education.

Four other South African universities have adopted and adapted the Pioneers Online model in developing similar professional development programmes. The author examines critically, and provides insights into successes and failures, with the aim of sharing strategies for the advancement of South African Higher Education.

Keywords: communities of practice; action research; professional development; e-learning

1 Introduction
Challenges in South African higher education such as large numbers of under-prepared learners from diverse backgrounds, limited resources and low through-put rates need no elaboration. At the Durban University of Technology (DUT) there is also the call to specialise increasingly in being a university of technology, spearheading the development of knowledge of technology for practical purposes (Slammert, 2007). An added challenge is giving learners the edge they need to compete in the global job market where technology has become ubiquitous in all professions, whether in art, commerce, engineering or health. E-learning, used judiciously, has increasingly played a positive role in this respect. The focus of this paper is not to expand on the potential of e-learning, but to elaborate on the strategy of the Department of Educational Technology in providing skills and resources to lecturers and learners in using technology to teach and learn.

2 The need for transformation
In Learning Technologies and Schools of the Future the following important points are stressed:

Globally there is a technological gap to be bridged between teachers and learners. Teachers are mostly digital immigrants who use technologies in limiting ways, e.g. the Internet as encyclopaedia. But by and large twenty-first century learners belong to Generation Y -- they are digital natives who use the Internet for social networking and knowledge construction:
“Learners are instead not just able to find out information for themselves, but to join communities and discussions where facts, information and knowledge are challenged and tested” (British Council for School Environments, 2007:4).

Although South African students generally have less access to technology compared to their counterparts in Western Europe, South African learners are to a large extent also digital natives. Most of this social networking takes place on cellular phones, a commodity which is a top priority to students regardless of their economical status.

In the process of enabling digital immigrants to keep up with the digital natives whom they have to teach, there has to be deep engagement with the relationship between technologies and pedagogy:

“Kit and cables don’t have a moral purpose or desire to transform” (British Council for School Environments, 2008: 4).

3 The need for inter-connectedness and inter-dependence
In Communities of Practice, Etienne Wenger expands on the nature of humans as social beings, and the fundamental social nature of learning. The implication for organisations are, “learning is an issue of sustaining the interconnected communities of practice through which an organization knows what it knows and thus becomes effective and valuable as an organization.” (1998:8).

Actively creating a community for e-learning practitioners became a priority in 2002 at the Durban University of Technology (DUT) during the merger of two institutions. From an organisational point of view there was a need for encouraging collaboration across boundaries to foster new relationships. From an educational perspective the need for cross-disciplinary teaching had been emphasised in the critical cross-field outcomes defined by the National Qualifications Framework of the South African Qualifications Authority. During this time in history developments in educational technology in higher education moved into the use of learning management systems to enable networked learning environments on the World Wide Web. Thus from various perspectives it became clear that a community of practice (COP) could be an important way to enable e-learning.

3 Methodology
Action research methodology was chosen for this investigation, particularly for its characteristics of systematic, collaborative problem solving (O’Brien, 2002).

It is the aim of the study to describe processes and procedures used in this particular educational setting and to distil those principles “...which have emerged from collaborative enquiry by higher education teachers into their practice in this particular context” (Zuber-Skerritt, 1:1990).

4 A mandala of enquiry
The word "mandala" (from the classical Indian language Sanskrit) means an integrated structure organised around a unifying centre. Examples of mandalas are found in nature, biology, geology, chemistry, physics, astronomy, and in most spiritual traditions. Atoms, snail shells, mosque and cathedral domes, labyrinths and medicine wheels are all mandalas. Although a mandala is an ancient visual concept, it is increasingly used for enquiry in the fields of education, psychology and art -- to explore contemporary problems where change is desired. Each mandala is part of a larger mandala -- it reveals the nature of the individual (micro) as part of the whole (macro). The mandala is about a balance of independence and interdependence (Cunningham, 2006).

Regarding this study, the mandala is a useful guide for its qualities of interconnectedness, interdependence, enquiry and transformation. The question raised in this paper is: How does one achieve in one curriculum, the equally important goals of interconnectedness, interdependence and transformation on the one hand; and on the other, teach lecturers skills, and meet certification requirements?
The author endeavours to examine the problem by discussing the aspects that have played a role in the roll-out of e-learning at the Durban University of Technology. At the end of the paper the relationship amongst these elements will be shown in the form of a mandala.

5 Principles of the community of practice
The following section highlights the principles that the Educational Technology team have found valuable in cultivating an e-learning culture. These are the principles that have motivated participating lecturers to complete programmes and participate in the community of practice:

5.1 A deep meaning orientation
A “production approach” where the main thrust of e-learning is to disseminate to learners content which was developed by instructional designers is not only expensive, but educationally problematic. Zuber-Skerritt (1990:10) argues that a “technocratic approach” leads to dependence on external experts. This is not to say that the development of high quality content is not important, however, it must be stressed that disseminating content does not translate to learning. Zuber-Skerritt suggests a “deep meaning orientation”. For lecturers this implies a problem-based approach to learning. In an e-learning context it implies being active in creating learning environments where knowledge is constructed through interaction between members of the community (Perkins, 1991). In this model content provision and the mastery of fundamental knowledge remain part of the learning process, but does not constitute the beginning and end of learning.

5.2 A professional development approach
At DUT a deep meaning orientation has been followed, where lecturers create online learning environments centred around educational problems in their own environments. Development takes place at a pace and level which allows them control of the process, since control plays an important role in motivation (Malone, 1981). Another reason for taking this “staff development” route was since this approach does not require an extensive educational technology staff infrastructure. The staff development approach was the seed from which of an accredited professional development programme grew in years to come.

5.3 Voluntary participation
Lecturers volunteering to register for certified training is good from a motivation point of view. Stressing that participation is a personal investment for the individual is also an effective incentive.

5.4 A nurturing space
In the same spirit it is important to make workshops a relaxing opportunity for lecturers to get time out from the daily grind, and an opportunity to make friends with innovators from other departments. In this way the Department of Educational Technology becomes a home away from home. Bring and share meals and discussions around the lunch table are a great way to build rapport. In the words of an online lecturer, “Pioneers who eat together, complete together”.

5.5 Incentives and rewards
Zvacek (1991:41) explains the need to understand “the obstacles in the path of instructors who attempt to integrate technology applications into their instruction. It is equally important to know the incentives (or lack thereof) for innovation, and to recognize the multiple (and sometime contradictory) priorities imposed on the faculty member who chooses to adopt new teaching strategies”. Robinson and Borkowski (2000) emphasise the importance of an institutional structure that rewards faculty for developing online instruction.

Peer recognition and celebrating success is a pivotal part of what the community does. Regular small celebrations, rewards and tangible signs of membership (such as T-shirts) create a sense of belonging. In looking for ways to create incentives for participation it became increasingly clear that developing a certified programme could be a valuable reward for lecturers.

5.6 Spirit of generosity
Since the pressures of research tend to lead to an over-awareness of intellectual property and a hesitation to share knowledge, an important attitude to encourage is a spirit of generosity, which leads more readily to collaboration. Encouraging lecturers to acknowledge any shared work instills a sense of credibility and pride as well as the desire to reciprocate. This also creates a favourable climate for mentorships and peer support.

5.7 Safe space, challenge and creativity
Embarking on e-learning is much about being challenged, leaving behind the comfort zones of traditional teaching methods. The first step is to establish a safe space, since for lecturers who are nervous of technology a safe space where the emphasis is on experimentation and learning from mistakes is important. Within such a space where there is generous peer support, the challenge of finding creative solutions to problems is far less daunting.

5.8 Other aspects of motivation
Other aspects built into our approach to increase participants’ motivation are:

- Relevance (Keller, 1983) – lecturers see the relevance of what they achieve through contact with, and validation by, mentors and networks inside and outside the institution.
- Satisfaction (Keller, 1983) – work becomes more doable and satisfying to lecturers if courses are broken down into small units, followed throughout by continuous assessment and frequent feedback.

6 Strategy
The following matrix encapsulates how the community of practice is sustained by a three-tiered programme which was developed in collaboration with participating lecturers:

Table 1: A three-tiered programme

<table>
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<tr>
<th>Certified programmes</th>
<th>1. Web-readiness</th>
<th>Increasing computer literacy</th>
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<tbody>
<tr>
<td>2. Pilot web-based learning (Pioneers Online)</td>
<td>This core programme covers a broad base of e-learning knowledge and skills. The emphasis is on application / teaching practice.</td>
<td></td>
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<tr>
<td>3. Full-scale implementation</td>
<td>Deepening of practice; specialist areas of research.</td>
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<tr>
<th>Upskilling workshops</th>
<th>Keeping up with developments in technology</th>
<th>Short-term, need to know basis</th>
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| Community of practice (COP) | Online and face to face interaction: showcases; problems and solutions; mentoring and peer support; shared expertise and resources | Cascading model: As more lecturers qualify as members of the COP, expertise builds up gradually and the knowledge base expands. |

6.1 Certified programmes offer lecturers the opportunity to gain design, technical and research skills and knowledge about pedagogy. The Pioneers Online programme is a long term commitment (100 notional hours). Although the focus is on online interaction, regular face to face contact is necessary to build rapport. Time out from their daily work environment is valued by lecturers since it gives them uninterrupted time to consider new ideas. On completion of Pioneers Online, a teaching development grant is used to free selected lecturers from their teaching. It is used as a reward - those lecturers who proved their commitment to e-learning are invited to participate.

6.2 Upskilling workshops are short-term opportunities for certified lecturers to keep up to date with upgrades and changes in technology.
6.3 The community of practice which is all about peer support and mentoring, has many facets, e.g. an online space, showcases, discussions about problems and solutions, all with the aim of sharing expertise and resources across faculties and academic disciplines. Membership grows steadily as more lecturers are certified.

7 Pioneers Online Programme Design
The community of practice is mainly sustained through Pioneers Online, the core programme. Every year a minimum of 15 and maximum of 40 lecturers across all faculties are accredited as practitioners. The course of 100 notional hours is designed against the “Web-based Learning” elective module of the Postgraduate Certificate in Higher Education.

The Pioneers programme is structured around the multiple roles a lecturer plays when practising web-based learning:

Table 2: A programme structured around roles

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<tr>
<th>Phase</th>
<th>Description</th>
<th>Reflection</th>
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<tr>
<td>ONE: Learner/Researcher/Community member</td>
<td>Lecturers get their first exposure to action research methodology and educational theories related to web-based learning.</td>
<td>The emphasis is on collaboration, and establishing a theoretical foundation and a problem-based approach to e-learning.</td>
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<tr>
<td></td>
<td>Groups have to summarise and share a wide range of literature in a short space of time.</td>
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<tr>
<td></td>
<td>Through discussions participants identify a range of educational problems and possible technology solutions in the context of local and international higher education trends.</td>
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<tr>
<td></td>
<td>Every group designs and presents a mind map in which the relationship between the concepts above are reflected.</td>
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</tr>
<tr>
<td>TWO: Designer</td>
<td>Every individual participant designs a pilot online course.</td>
<td>The emphasis is on the development of design and technical skills.</td>
</tr>
<tr>
<td>THREE: Assessor</td>
<td>Online assessment tools are tried and tested.</td>
<td>The emphasis is on design and technical skills. There is an overlap with the Assessor Training Course of the Centre for Higher Education Development.</td>
</tr>
<tr>
<td>FOUR: Facilitator</td>
<td>Lecturers design, develop, implement and evaluate an online activity to address a teaching problem.</td>
<td>This is the central aspect of the course. An important research activity is the design and use of an evaluation form to capture feedback from users.</td>
</tr>
<tr>
<td>FIVE: Administrator</td>
<td>Course management tools are tried and tested.</td>
<td>The emphasis is on design and technical skills.</td>
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Every participant writes an action research paper with a foundation in the relevant educational theories. The paper reflects on the design, development, implementation and evaluation of an online classroom which aims to address a teaching problem.

The last two phases close the circle, going back to the roles of researcher and community member.

Participants present their artifacts and findings to the web-based learning community of practice.

The following principles are built into the course structure:

**Table 3: Principles built into the course structure**

<table>
<thead>
<tr>
<th>Principle</th>
<th>Rationale</th>
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<tr>
<td>Problem-based approach</td>
<td>Since action research pursues action (or change) and research (or understanding) at the same time (Dick, 2002), all the course activities are focused around problems identified in the beginning of the course. Technologies are selected with the purpose of solving problems.</td>
</tr>
<tr>
<td>Collaborative and individual work</td>
<td>To enable a teamwork approach, both collaborative and individual work and assessment are built into the programme.</td>
</tr>
<tr>
<td>Formative and summative evaluation</td>
<td>Formative evaluation always precedes summative evaluation. Continuous assessment and feedback makes the completion of the course more feasible for participants. A high through-put rate has been the result.</td>
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</tbody>
</table>

**8 Failures and milestones**

Lecturers indicated in a recent survey that the challenges they continue to experience are related to resources -- sufficient laboratories for large numbers of learners, bandwidth to support streaming technologies, and 24/7 server up-time and electricity supply.

According to an electronic mail survey conducted in February 2008, the most common benefits lecturers have experienced through participation are:

- Having been re-energised
- Getting time out from their academic departments
- Participating in formal activities and being a part of a well-informed and knowledgeable community of practice
- Being prompted to do research and interrogate teaching methods.
- Being given the opportunity to keep up with generation Y students
- Keeping up-to-date with international trends in education and becoming more competitive as an institution
- Gaining a better understanding of pedagogy
- Having been provided with a safe, supportive environment to learn about a technology that has the potential to change the way courses can be delivered and managed
- Pioneers Online provided a model for cooperation that could be emulated to grow other communities of practice at the institution

**9 The e-learning mandala**

The mandala below emerged through exploring the question, “How does one achieve in one curriculum, the equally important goals of interconnectedness, interdependence and transformation on the one hand; and on the other, teach lecturers skills, and meet national accreditation requirements?”
The core of this mandala above is enquiry itself.

A mandala is created through the presence and participation of an observer (Cunningham, 2006). This ties in with the subjective nature of collaborative action research, where research is shaped, and problems are solved by participants, and where “the initiating researcher, unlike in other disciplines, makes no attempt to remain objective, but openly acknowledges their bias to the other participants.” (O’Brien, 2002, Online). In this spirit of collaborative active research the mandala above was created through the input of, and verified by feedback from, members of the Pioneers community of practice.

The DUT community of practice gave birth to e-learning COPs at other South African universities, but in turn collaboration with those communities influenced, developed and transformed e-learning practice at DUT.

A major benefit of the community of practice approach to e-learning is that it results in culture of innovation and excellence, which has a positive influence on the morale of the institution. The community’s non-hierarchical nature means its existence can be sustained in a changing or unstable climate.

Although the community of practice is central to sustaining the fabric of innovation, it does not replace other aspects such as policies, procedures and the provision of resources important to formalising the integration of the practice into the curriculum.
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References