Changing Roles of Lecturers in a Resource-based, Open Learning Environment

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In a post-apartheid South Africa, national educational policies are currently being drafted, in order to address the imbalances of the past. The Green Paper on Higher Education Transformation (1996, p. 25) outlines a comprehensive set of initiatives for the transformation of higher education. Amongst others, emphasis is placed on the use of resource-based, open learning systems:

"...distance education and resource-based learning have a crucial role to play in meeting the challenge of greater access and enhanced quality in a context of resource constraints and a diverse student body...Distance education based on the principles of open learning leads to the development of a system which is organised for use by learners at different times, in different ways and for different purposes..."

However, according to the Green Paper resource-based, open learning is not only appropriate for distance education. It can also be used for the "reorganisation of learning and teaching in contact institutions" (1996 p. 25). Its use in this context will lead to the improvement of quality and effectiveness. Open learning seeks to increase access to opportunities by removing all unnecessary barriers to learning. Brevik (in Rakes, 1996 p. 52) defines resource-based learning as "a learning mode in which a student learns from his or her own interaction with a wide range of learning resources, rather than from classroom exposition". Both the above learning modes accommodate the reality of a diverse South African learning environment to a far greater extent than traditional means of teaching.

The Context of this Paper

The following information should provide some idea of the context of this report:

The role of the first author of this paper is educational researcher and the role of the second author is lecturer of the subject under discussion.
Lecturer's Observations

During frequent meetings and discussions between the researcher and the lecturer, it was ascertained that traditional lectures pose the following problems for this particular course:

**Academically Weak Students.** Two out of nine students who took the course during the first semester of 1997, did not manage to hand in projects at the end of the semester. The lecturer therefore felt the need to speak to students more often on a consultative basis, in order to advise, guide, and keep a check on whether they are coping. The inflexible structures of the current system (fixed hours for lectures and fixed consultation hours of the lecturer) do not allow for sufficient communication between lecturers and senior students who have equally busy schedules.

**Academically Competent Students.** Senior students in the fast-growing field of information technology are often experts in a wide variety of specialist areas. Traditional lectures, where communication is one-directional, do not capitalise on the collective base of knowledge and experience that such students have. The lecturer noticed that these students often appeared to be bored during lectures. There is therefore a need for an environment where she could use the expertise of these learners in an interactive, collaborative learning environment.

Students' Observations

**Unstructured Group Interview with Students.** Six out of the total group of nine students who completed OS IV during 1997 attended a group interview. The students highlighted the following difficulties with their current course:

• All students held part-time jobs while studying towards their final year. They would welcome a system that had a more flexible time schedule.

• They also felt a need for access to course materials (readings and examples of software) on the network.

• By the end of the course, none of them had seen the projects completed by co-learners. They expressed the need to have easy access to these resources.

• Furthermore, access to previous years' projects could serve as a foundation upon which to build their research, in a field that rapidly expands every year.

• There was also the need for discussions during the development of projects.

**Individual Structured Interview with Non-completing Student.** The two students who did not hand in their projects were invited by the researcher to attend an interview. One student attended, and indicated that she experienced the following difficulties during her course:

She worked full-time at another department on campus while completing a full-time course and she found it difficult to attend the lectures.
She did not have frequent contact with other students to discuss problems while she was completing her project. She did not see their projects either during development or after completion. She therefore had the need for more frequent discussion with her lecturer and fellow students.

Interpretation of Interviews

Information from all three interviews indicate that Operating Systems IV in its existing form lacks flexibility of learning time; access to resources, and collaboration.

Strategies for Improvement

In order to improve on the current system, the lecturer and researcher designed and developed an open learning system in the form of a virtual classroom on the World Wide Web. The classroom prototype was designed during the latter half of 1997, and will be implemented during the first half of 1998.

Conventional lectures are replaced with an on-line environment that students can visit in their own time, in order to collect resources, contribute to resources and deliver assignments. The classroom serves as a "dumping site" for lecture materials and resources. A second essential characteristic of the classroom is that it will become a "construction site" as students contribute to the building of the learning environment.

An important component of the virtual classroom is a listserv (asynchronous electronic mail discussion forum) which allows students to share ideas; brainstorm problem solving techniques and consult the lecturer. Asynchronous communication was chosen in order to allow students to post questions and responses in their own time. Time will be made available for synchronous discussions during face-to-face tutorials when the need arises. This is a feasible solution, as students are mostly employed as technicians by other departments on the same campus. In this instance the purpose of open learning is not to overcome problems related to distance. It is used to improve upon the traditional, one-directional, static lecturing system, which is particularly limiting for the teaching of small groups of expert learners.

The OS IV virtual classroom is an adaptation of the University of Pretoria's Virtual Classroom for Masters in Education students (Cronjé, 1997). In this classroom the metaphor of a physical classroom was used. During a target population analysis of prospective and past OS IV students it was ascertained that the vast majority of students enjoy science fiction novels and films as well as adventure games. As a result, the metaphor chosen for the OS IV classroom is a futuristic, on-line police station named "The COP Shop" (COP being an acronym for Computer OPerating Systems). Students act as an exclusive team of technologically-minded cops and they are expected to solve distributed operating system problems, in order to rid the Internet community of cybercrime and corruption.

The structure of the classroom on the WWW is explained in the table below.
Lecturer as Facilitator and Guide. The role of the lecturer becomes more democratic as she retreats into the background to guide the learning process amongst learners, rather than to provide solutions. The facilitator of a virtual classroom for students at Master's level at the University of Pretoria comments as follows on his role as facilitator:

"a) I develop NO content. I simply point them to resources. b) I provide NO instruction. I monitor their classroom listserver discussion and prod and prompt here and there. c) I set goals and deadlines. d) I take flak from frustrated learners. e) I share their joy as they discover they can do it for themselves". (Clarke, 1997)

Lecturer as Participant. As the lecturer becomes merely another member of the listserv discussion group, she has the opportunity to learn from solutions provided by learners. In order to enable the lecturer to stay in touch with the development of discussions, it is important to encourage students to mainly make use of the listserv, rather than to send personal e-mail messages to one another.

Lecturer as Researcher. Embarking upon experimental, innovative methods of teaching also opens up opportunities for lecturers to do action research. This type of research specifically supports reflections upon small cycles of continuous experimental interventions and adjustments to improve teaching environments. Action research is collaborative and participatory (Cohen & Manion, 1992) and therefore lends itself very well to a team teaching approach.
Table 1: Components of the COP Shop

<table>
<thead>
<tr>
<th>Briefing with Commanding Officer (Lecturers' Desk)</th>
<th>Bullethn Board</th>
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<tbody>
<tr>
<td>This link explains to learners how to subscribe and use the email server, in order to collaborate with their lecturer and peers in solving problems.</td>
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<tr>
<th>Ammunition (Resource Cupboard)</th>
<th>Training Programme (Study Guide)</th>
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<tr>
<td>1. Subject-related Resources</td>
<td>The study guide contains:</td>
</tr>
<tr>
<td>Students are guided towards a variety of resources connected with the subject Operating Systems. The resources may take a variety of forms, e.g., books and journals in the technical library, digital libraries on the Internet, computer programs, of URLs on Web page locations.</td>
<td></td>
</tr>
<tr>
<td>2. General Resources</td>
<td>1. the topic organisation, explaining to students what the aim of the course is and what the course prerequisites are;</td>
</tr>
<tr>
<td>In order to effectively browse the Web, find information, and construct a website, students are given access to resources, e.g., search engines, Web editors, plug-ins (to play animation and sound files etc.; and special libraries).</td>
<td></td>
</tr>
<tr>
<td>Missions (Tasks)</td>
<td>2. the performance outcomes, specifying the skills the students will have acquired, on completion of the course;</td>
</tr>
<tr>
<td>1. Cooperative tasks</td>
<td>3. details of the unit standard (syllabus) containing the topics to be covered, as well as the duration of the course;</td>
</tr>
<tr>
<td>Learners are divided into cooperative learning groups, and assigned ideas in order to contribute to the completion of communal projects.</td>
<td>4. the composition of the final mark, as well as the evaluation criteria; the lecturer will follow to assess all work.</td>
</tr>
<tr>
<td>2. Individual tasks</td>
<td></td>
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<tr>
<td>Each learner is expected to complete an individual project.</td>
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<tr>
<td>Open Lockers (Student desk)</td>
<td>Team Mission Reports (Cooperative projects)</td>
</tr>
<tr>
<td>Students will post their individual assignments here. Past projects are also made available.</td>
<td>Cooperative tasks are deposited here.</td>
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Implications of Open Learning for Lecturers

In an open learning environment, the role of a lecturer becomes multifaceted. In addition, there is room for participation by other professionals in the teaching and learning process.

Changing Roles
In a cooperative learning environment, the traditional role of a lecturer changes from transmitter of knowledge to planner, manager, facilitator, guide and participant (Kyla A. Anderson 1996). Another role that can be added to the above is the role of lecturer as researcher of the learning process.

Sharing the Load with Other Professionals

Educationalists other than the lecturer accepted the invitation to participate in the teaching of the new OS IV course. For clarification, the team members are divided into the following four categories: virtual classroom facilitator/manager (previously lecturer); learner; educational researcher; librarian.

The role of librarian becomes particularly important in the context of resource-based learning through the medium of the Internet. The World Wide Web (WWW) as a resource base in education has to be used with an awareness of the following:
• It is easy to waste vast amounts of time while wandering aimlessly through this unstructured, multidimensional environment.
• Information tends to be updated, improved, rearranged, and moved frequently (Rakes, 1996).
• In collaboration with lecturers, librarians can participate in the evaluation of WWW resources, as well as in teaching students how to evaluate sources for their appropriateness, before they are used.

**Implications for the Curriculum**

**The National Qualifications Framework**

In the process of educational transformation, a National Qualifications Framework (NQF) was recently established in South Africa. One of the principles on which the NQF is based, is portability, which will enable learners to transfer credit across different modes of study and qualifications within the national framework: "The Framework will prevent learners from being locked into one learning compartment or another, as happened in the fragmented system." (Human Sciences Research Council, 1995 p. 6).

The NQF defines a "unit standard" as the smallest unit that can be meaningfully assessed, previously known as a "subject" within a qualification. The curriculum development process of Operating Systems IV is done according to the necessary requirements, so that it can be registered as a unit standard with the NQF.

**Performance Outcomes of OS IV**

The value of the development of the OS IV virtual classroom lies in the fact that it contains a model that can be used by other teachers who wish to experiment with resource-based, open learning. In this regard, the unit contains: performance outcomes related to *study skills* (amongst others, information literacy); performance outcomes related to *computer literacy*, and performance outcomes related to *Internet literacy*. These outcomes can all be adapted and used by other lecturers. Lastly, performance outcomes related to the specific subject area (e.g. OS IV) will differ for every subject.

**Conclusion**

The implications of the new structure of OS IV are:

• a more flexible time schedule, to accommodate senior students;

• increased access to resources;

• opportunities for better communication and collaboration;

• a richer and more challenging role for the lecturer of the course; and

• a more flexible curriculum that fits in with NQF requirements and standards.
The course in its new form should therefore make a constructive contribution to higher education transformation in South Africa.

References


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