CASE N° 11 : eLearning unit, University of PRETORIA South Africa

PTQ comments on this case :

Very interesting and well-documented case especially in the topics of : the methodology used in raising the staff awareness and the quality model proposed for elearning content design.

This case is particularly interesting too for its addressing of the definition of one entity role's boundaries in a complex and overlapping departments organization.

CEN / ISSS Workshop On Learning technologies
Project team Quality Development

PART ONE : CALL FOR CASE

PART TWO : DESCRIPTION OF THE CASE

CEN / ISSS Workshop On Learning technologies
Project team Quality Development

PART ONE : CALL FOR CASE

1 Identification of the contributors

- Dr Jill Fresen, E-learning Project Manager, University of Pretoria, South Africa.
- Ms Lesley Boyd, Independent Quality Assurance Consultant, Johannesburg, South Africa.

Respective involvement in the implementation of the quality approach:

- In 2001, Dr Fresen was requested by decision makers in the e-learning unit at the University of Pretoria (UP) to co-ordinate a formal quality management approach for e-learning. She co-ordinated the task teams and their work in analyzing and documenting the procedures which make up the instructional design process. She is responsible for keeping the online system and documentation up-to-date and advising users about its availability and use. As a result of the project and her independent research, Dr Fresen obtained her PhD in 2005, with a thesis entitled “Quality assurance practice in online (web-supported) learning in higher education: an exploratory study” (see reference in paragraph 4 below).
- Since the theory and practice of quality assurance is a specialized area which is not part of the core business of the e-learning unit, the decision makers agreed to contract an independent quality assurance specialist (Ms Lesley Boyd) to train the operational actors and to provide expert advice and guidance in the establishment of the formal quality management system for e-learning.
- Ms Boyd facilitated, consulted and participated in an advisory capacity, in the design and development of a formal, online, process-based quality management system (QMS) for the e-learning unit at the University of Pretoria. She provided expertise and experience in the theory and application of quality assurance practices, based on ISO 9000 guidelines, although ISO 9000 certification was not required at that stage by the University. Ms Boyd designed and presented training for the prospective users in the form of a workshop: “Introducing Quality: An introductory workshop on implementing a Quality Management System (QMS)”. The workshop was repeated for small groups of departmental management, project managers and instructional designers.
- The operational actors in this quality management project are a team of instructional designers and project managers, who are experts in the design and development of e-learning products, as well as academic staff (lecturers) who implement the products and facilitate learning in the electronic environment.

2 Identification of your institution

The University of Pretoria, Department of Telematic Learning and Education Innovation (TLEI), Pretoria, 0002 South Africa. The University's home page is at http://www.up.ac.za

- The vision and mission of the University of Pretoria are given at http://www.up.ac.za/up/web/en/up/about/
- The vision and mission of the Department of Telematic Learning and Education Innovation (TLEI) are given at http://www.up.ac.za/telematic/vision.htm

The University of Pretoria is the largest contact university in South Africa, with a 2004 student population of 38 963 contact students and 7 608 distance education students. There are 1 250 academic staff members. The University offers diplomas, certificates, undergraduate and postgraduate degrees in 9 faculties: Humanities, Education, Natural and Agricultural Sciences, Economic and Management Sciences, Engineering the Built Environment and IT, Health Sciences, Veterinary Sciences, Law and Theology.

The Department of Telematic Learning and Education Innovation (TLEI) (http://www.up.ac.za/telematic/) is a support department that was established in 1998 to support academic staff in education innovation and best teaching practices. TLEI provides the following services: E-learning implementation and support, Education Consultation and Innovation, Education Technology in the classroom, Graphic, Photographic and Video services. Support teams consist of Group Heads, Project Managers, Education Consultants and Instructional Designers for the e-environment. The e-environment consists of a virtual campus (administrative and financial details for lecturers and students), learning management system (currently WebCT) for teaching and learning materials and communication, multimedia material on stand-alone CD Roms, computer-based testing and electronic portfolio systems.

3 Identification of the quality needs in your e-learning services

In 2001, TLEI management requested a formal quality approach to be implemented for the e-learning unit, but not necessarily to ISO 9000 specifications[1]. The decision-makers were motivated by the need to investigate quality assurance practice with regard to e-learning, in the quest for continuous improvement of their services and products.

The objectives of the process-based online QMS for e-learning are:

- To provide a defined framework for all role players to work together consistently along the entire project timeline
- To enable everyone, including new staff, to understand 'the way things are done around here'
- To identify together areas for improvement
- To provide an integrated and simple method to access and use supporting documentation eg checklists, forms, templates
- To ensure that the right tools are available to allow for comprehensive checks and to minimise errors
- To try and catch any errors as soon as possible before it's too late or too expensive to fix them
- To evaluate completed projects and help to assess their impact on teaching and learning at UP
- To learn lessons which may help to improve future projects
- To share more with each other about ways of doing things
- To demonstrate to any external stakeholders (e.g. auditors or UP management) that TLEI has a formal quality management system in place to control e-education projects

The QMS focuses specifically on the *instructional design process* in the e-learning unit. The instructional design process was already represented by a **'project timeline'** based on the Analysis, Design, Development, Implementation and Evaluation (ADDIE) instructional design model. The project timeline was iteratively refined and improved during the course of the project. Each of the stages in the project timeline was documented as a formal procedure, in a specified format, as part of the

[1] Where ISO 9000 guidelines were considered useful, these were adhered to, so that the system may be adapted to ISO 9000 specifications at a later stage if required.

online system. Each procedure contained an objective, procedure steps, people responsible and the supporting documents required to carry it out.

4 Documentation of your QA implementation

There are two key documents which firstly describe the practical details of the implementation, and secondly the research questions and findings as a subject for doctoral research.

a. The implementation is described in FRESEN, J.W. & BOYD, L.G. (2005). Caught in the web of quality. *International Journal of Educational Development*, 25(3), 317-331, available online from the Elsevier database at www.sciencedirect.com.

b. The implementation and surrounding research issues and debates are described in FRESEN, J.W. (2005) Quality assurance practice in online (web-supported) learning in higher education: an exploratory study. PhD thesis, University of Pretoria. The thesis is available at http://upetd.up.ac.za/thesis/available/etd-02172005-134301/

These documents describe the details and methods of the quality approach, the user groups involved, the development of the project from its inception in 2001 and the phases of implementation up to October 2003 when the formal online system was launched.

Further details about the motivations for choosing the quality approach, and the associated risks involved with these decisions, are given in Table 1 overleaf. It is noteworthy that the risks have been identified with the benefit of hindsight and experience, as opposed to being acknowledged and understood at the beginning of the project. The final column in Table 1 identifies possible actions which were taken or could be taken to mitigate these risks in future projects, as well as lessons learnt in cases where action was taken.

CEN / ISSS Workshop On Learning technologies
Project team Quality Development

Table 1: Characteristics of the quality approach

CHARACTERISTIC	INTENTION	DRIVEN BY	RISKS / OBSTACLES	MITIGATING ACTIONS / LESSONS LEARNT
• formal	– Documented – Auditable – Visible to external stakeholders e.g. university management	Specified by TLEI	– Management resistance to generation of documentation; time taken versus perceived benefits; difficulty in seeing added value; expectation that consultant should prescribe 'best practice' procedures – Inappropriate expectations; for example that the system will 'guarantee' improvements in quality	– Engage directly with management team 'up front' regarding their expectations and responsibilities – Engage with expectations of external stakeholders if appropriate and possible – Illustrate likely benefits versus costs and time from previous implementations
• online	– Minimise paperwork – Reduce perceptions of bureaucracy – Minimise circulation of and – reliance on obsolete documents	Specified by TLEI	– Work load pressures make it difficult to prioritise development time for online system – Once created, it must be maintained and kept up to date for both internal functionality and external visibility	– Ensure adequate prioritisation, resource allocation and time scheduling given other constraints. – Treat QMS implementation as a project in itself
• process based	– Recognise the importance of understanding the entire ID process from beginning to end, and how an awareness of the process assists both internal and external role players to contribute and work together effectively	Advised by consultant	– Management resistance to notions of 'process'; possibly associated with commerce and perceived to be inappropriate for higher education	– Ensure that management team fully attend appropriate training workshops. These should ensure 'buy in' and willing leadership in the project implementation.

Table 1: Characteristics of the quality approach (continued)

CHARACTERISTIC	INTENTION	DRIVEN BY	RISKS / OBSTACLES	MITIGATING ACTIONS / LESSONS LEARNT
• consensus driven	– From the outset, based on ownership and involvement of the IDs and project managers; rather than being prescribed or 'spoon-fed' by the external consultant	Advised by consultant	– Inability to reach consensus among role players, or to implement and drive this consensus forward; expectation that consultant should be providing answers – Natural human resistance to change; tendency to overlook the value of the system, e.g. that it is 'only a document management system'	– Adopt a peer review 'self evaluation' based approach rather than a prescriptive 'one size fits all' approach – Do not allow too much time to lapse in between training and procedure writing – Ensure management and staff concerns are directly raised and addressed throughout the entire project – Recognise that the QMS is an innovation and will pass through a series of change management stages before the role players engage fully with it. Sufficient time must be allowed for this to happen.
• ISO9000 cognisant	– Recognise the many useful elements and principles behind ISO9000, without following requirements to the letter or seeking ISO9000 certification; since ISO9000 is perceived as inappropriate and bureaucratic in HE circles	Suggested by consultant	– Automatic dismissal and perceptions of bureaucracy as soon as ISO9000 term is mentioned	– Provide appropriate training and awareness in useful elements, such as process orientation, continuous improvement, measurements etc, and acknowledge contentious areas of ISO9000

5 Improvements and effectiveness

There are several categories of improvements which were brought about by the implementation of the QMS:

Short term
Some immediate improvements were fairly readily agreed upon by consensus within the self-evaluation task teams. These included:

- formalising existing documentation and establishing new pilot procedures especially in the needs analysis and evaluation phases
- replacing certain terms considered negative or undesirable, such as the peer evaluation of prototypes, referred to at the time as 'shredding sessions'
- streamlining certain checklists and forms - historical and intuitive attempts at checking quality which were still in circulation.

Medium term
Some medium term improvements were found when instructional designers left TLEI and new staff were engaged. Existing staff, especially those of long standing, were already very familiar with practice and procedure within the unit, and easily assimilated the short term refinements to which they contributed. Hence they found the documented procedures to be of less value. However, when new staff joined, especially at satellite campuses located away from the main TLEI offices, they found the documented procedures and associated supporting documentation to be very useful as a support mechanism in assimilating 'the way things are done at UP' and what was required of them. They have since identified several refinements to the documented procedures and available forms and checklists.

Long term
Longer term improvements are associated with the operation of the system over time, and recognition of its practical value. The generation of longitudinal measurements, for example from student surveys, and the utilisation of those measurements to prioritise improvements and then feed these back to students, is a case in point.

It is noteworthy that the student and lecturer satisfaction data collected over time (see below) indicates a very high level of satisfaction with e-learning from both operational actors and learners at UP. The context is of a well-resourced university with a strategic driver for education innovation, and a campus wide investment in technical infrastructure. The student data

collected illustrates, for example, that a great deal of progress has been made by the university as a whole to address issues such as shortages of computers and printers for student use on campus, and the speed of resolution of technical difficulties (see Table 2 below). We believe that student and lecturer satisfaction is derived from a series of critical success factors, which were investigated in detail and explained in both the supporting documents identified in paragraph 4. The achievement of appropriate levels of satisfaction and performance in all of these factors results from a combination of many variables, of which the implementation of the QMS for TLEI was one important contribution.

Evidence and measures documenting the effectiveness of the implementation:

Examples from student surveys (2005):
(Note: grammar/spelling has not been corrected)
" Overall its much better than other universities I've been to."
" convenient - professional - reliable - mostly well-maintained. "
" Really it was a supporting encounter not to forget, it was also a privelege. "
" I am satisfied with the technical progress and believe that focusing on the same aspects next year will further improve the technical service. "
"Everything is perfect" (!)
" To my understanding there is no improvements that i can suggest, your sservices has meet my satisfication. "

Longitudinal measures of student satisfaction (2003-2005) :
Some comparative findings are given below in terms of the percentage of respondents who agreed or strongly agreed with each statement. Increases in agreement with positively stated items and decreases in agreement with negatively stated items are evident.

Table 2 : Measures of student satisfaction, 2003 – 2005

	2003	2004	2005
I have access to my own computer (either at home, at work or in the residence)	80.5%	78.6%	73.1%
I find it difficult to find a computer on campus when necessary	85.1%	50.3%	36.5%
I find it difficult to find a printer on campus when necessary	73.3%	45.3%	42.2%
My technical difficulties were solved within 24 hours	43.7%	79.3%	76.1%
I felt comfortable communicating via online tools	72.9%	80.0%	82.8%
Web-supported communication helped me to express myself more than I would have in a traditional classroom	79.1%	57.9%	60.9%
I found web-supported learning to be an enriching learning experience	81.9%	77.7%	78.7%
I experienced feelings of annoyance or stress during this web-supported learning experience	80.0%	37.9%	32.5%
I found the opportunities for 'anywhere, anytime' learning on the web to be convenient	73.8%	87.0%	88.3%

Examples from summative evaluation (lecturer interviews in 2003):
"I am amazed every day by the excellent, enthusiastic and helpful manner in which the e-learning unit encourages, supports and leads us."
"The general support that I receive is outstanding."
"The service provided is outstanding and professional."
"I have received a lot of positive feedback on the e-learning product from students and colleagues."
"The quality of teaching was elevated."
"Having an effective e-learning intervention has reduced the total teaching load."

"A valuable outcome was study guides of higher quality."
"More colleagues are beginning to adopt web-supported learning."

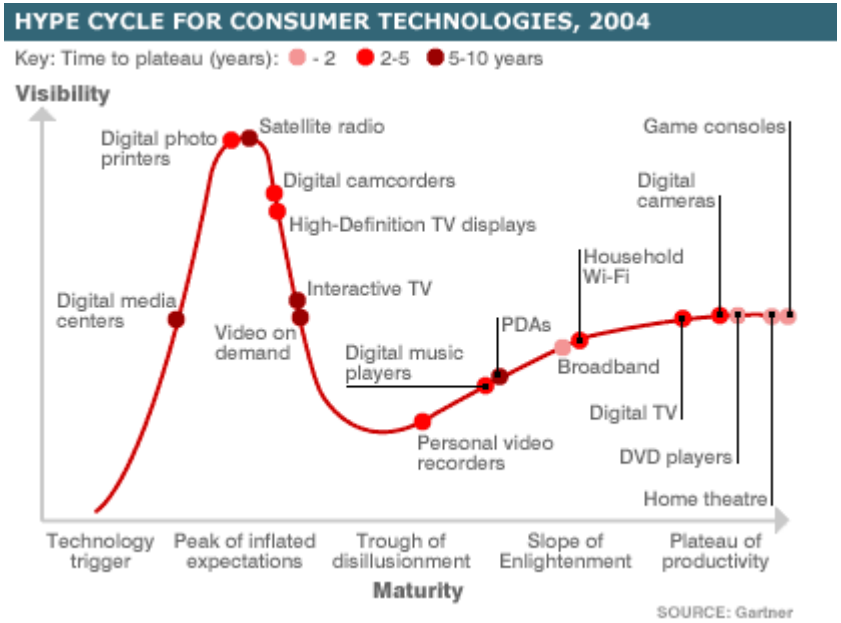
6 Consensus

The methodology used in documenting the instructional design process was *task teaming*. From the start, instructional designers and project managers were engaged in teams in the self-evaluation exercise of analysing and documenting their practice. This ensured consensus of the resulting procedures and supporting documentation.

Consensus was also obtained from the participants that the introductory training workshops held in 2001 and 2002 for decision makers and instructional designers were effective:
"I really enjoyed this workshop – enough interaction, good balance between drawing on old and new knowledge. Good examples."
"Thanks for all your hard work and sensitivity."
"A very enjoyable workshop. Knowledgeable and fun presenter."
"Not much to improve for such a short time allocated."

User evaluation of the formal online QMS was requested from instructional designers in January 2006 and their testimonies follow below. Since the formal online QMS is an innovation as well as a formal system, it was suggested that they could consider the position of the QMS on Gartner's hype cycle (http://www.gartner.com/hc/asset_50595.jsp). Figure 1 shows the hype cycle which reflects how any innovation, be it e-learning itself, or a new system, tends to go through the progressive stages 'peak of inflated expectations', 'trough of disillusionment', 'slope of enlightenment' and finally 'plateau of productivity'.

Figure 1



Source: http://news.bbc.co.uk/1/hi/technology/3577746.stm#graphic

"I think with regard to the QMS, I feel in between the 'slope of enlightenment' and the 'plateau of productivity'. I know that it is a very important tool in our environment and I am very glad it exists, but sometimes I seem to 'forget' about it – don't use it as well as I should."

"The Quality Management System has enabled me to understand project procedures much better. I was involved in the team of compiling some of the procedures and I have learnt how various procedures work. It was a bit confusing at the beginning when we started with the drafts of various procedures. In terms of Gartner's hype cycle, I think some people have adapted and are using QMS. I think QMS is on the Slope of Enlightenment. I can see the applicability and benefits of using QMS. If users put more effort into understanding the system, this could result in more enlightenment."

"I think the QMS at UP is now on the slope of enlightenment because the project has been in existence for a few years now and is being refined and improved on a continuous basis. The benefits of the QMS are:

- Excellent reference guide to all documentation
- One central place where updated versions of all documents are placed.
- System is user-friendly
- New staff may access the system and view all TLEI's processes and documentation in their own time and at their own pace."

"As an experienced instructional designer, I use my own supporting resources and just never need to use the online system. I don't even know where to find it!"

"The QMS serves as a repository for just- in-time reference and standardization of our current working procedure and processes for current staff. The value of it lies in the revision of the existing documents within the QMS. This provides the opportunity to re-evaluate our work processes and procedures. It has been accepted as the benchmark for services provided to clients."

"It gives a good work structure to the users (especially a new user of the system). It not only indicates the procedures to follow but there are also updated links to valuable resources while one is busy, planning, developing / evaluating a project."

"I started at the University and department after the development of the QMS. I found, as a new user, that it helped me a great deal to understand the processes and procedures already in place. I regularly use it to perform my daily tasks."

"I think we are on the slope of enlightenment…..
I find the QMS a very useful tool, especially when new staff members join the department. Instead of spending hours explaining our processes, I can just refer them to the QMS. They know what's going on and feel a bit more self-sufficient from early on. I also use the system regularly to obtain the forms that we use in our processes."

7 Reusability

The following elements are transferable to other organizations or situations or in future settings (for more details, see the documents listed in paragraph 4):

- elements of the quality approach, associated risk factors and mitigating actions (Table 1)
- diagrammatic process definition, i.e. project timeline
- training materials (updated and revised)
- QMS models and frameworks
- measuring and survey methodology
- taxonomy of critical success factors for web-supported learning.

8 Supporting innovation

As previously described, the QMS exists to support the implementation of e-learning at UP, which is a major innovation in itself. The online nature of the QMS is also a progression on from a traditional paper-based quality management system. A key aspect of the documentation is that processes and procedures have been implemented with sufficient flexibility to allow project managers and instructional designers the appropriate discretion in their work, and thus not to stifle innovation or creativity.

Regular 'Quality Circle' meetings are held for the production team, at which any improvements or variations to procedures arising from changing circumstances are discussed. Another aspect of the Quality Circles is ongoing professional development for instructional designers in order to keep up-to-date with latest developments in the field of ICTs and to improve their own skills, thus contributing to ongoing improvement of the e-learning products they design, develop and implement.

9 Continuous Quality improvement

This quality approach is still in use, and is being maintained and continuously enhanced (see 2006 comments from users in paragraph 6).

It is intended that the system be further developed by expanding the implementation of the summative evaluation procedure, which has been running in pilot form. This will help to identify further improvements based on ongoing analysis of qualitative and quantitative lecturer and student feedback data. In addition we hope to identify other types of measurement which may inform the cycle of continuous improvement, from the taxonomy of critical success factors described in the documents listed in paragraph 4.

A further planned refinement is the integration of summative evaluation of e-learning, with the UP-wide evaluation and review of study programmes, which is currently being implemented in preparation for external quality audits by the Higher Education Quality Council.

One of the conclusions of the EQO online 2004 survey was that: “the learner's involvement as a co-producer of quality is of high importance”. The students in this case study are surveyed on a regular basis, but they still need to receive sufficient visibility of what actions were taken from the survey results, via their lecturers or otherwise. This would be one way of further involving students as contributors to the quality improvement process, as well as closing the feedback loop.

10 Additional documentation

The online quality management system can be found at http://www.up.ac.za/telematic/quality/quality.htm

PART TWO : DESCRIPTION OF THE CASE

11 General Information on the organization

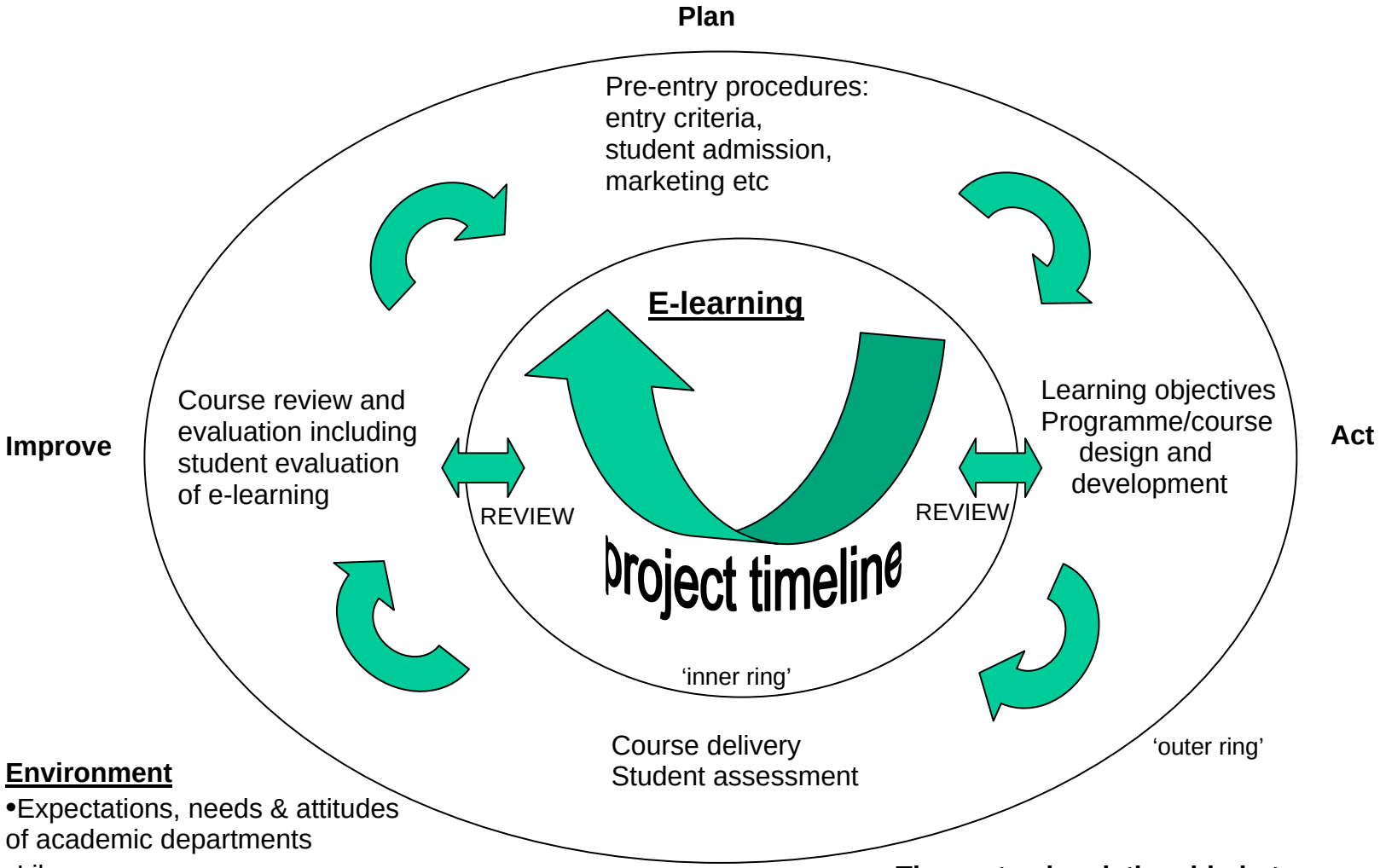
Name of the Case Study	Online Quality Management System (QMS) for the e-learning unit at the University of Pretoria, South Africa.
Case Study Abstract	This project focuses on the quality management of e-learning and may be considered a self-evaluation exercise of the e-learning design and production unit at the University of Pretoria, South Africa. Education innovation is one of eight strategic drivers at the University of Pretoria. Among other initiatives, this translates into the promotion, expansion and support of e-learning. The theoretical framework on which this project is based is that of an integrated, process-based quality management system, applied to the instructional design process which designs, develops and implements web-supported and multimedia learning interventions. We distinguish between the 'inner ring' (the e-learning design and production unit) and the 'outer ring' (environmental circumstances, such as the expectations, needs and attitudes of academic departments, institutional and national issues) (see diagram). The systemic relationship between role players in the inner ring and the outer ring has an influence on the overall quality of e-learning interventions.
Name of the Organisation	University of Pretoria
Address	Department for Education Innovation (EI) University of Pretoria Room 3-58, IT building Lynnwood Road Pretoria 0002 South Africa
Website	http://www.up.ac.za/telematic/quality/quality.htm

Size of the Organisation	Contact students: 39 000; Distance education students: 11 000; Academic faculty members: 1 830
Type of Organisation	University
Description of the Organisation (main fields of activity, products, services, markets)	Higher education institution, offering certificates, diplomas and degrees at undergraduate and graduate level. The primary mode is contact education, with e-learning support where appropriate (web-supported learning management system, stand-alone multimedia and e-assessment). A small number of graduate degrees are web-dependent. Distance programmes are offered mainly to rural teachers, using paper-based materials and m-learning via mobile phones.
Contact Person (Name and E-Mail)	Dr Jill W Fresen: jill.fresen@up.ac.za Ms Lesley Boyd: lgboyd@eject.co.za

12 General Information on the Quality Project

Overall Objective	To implement a formal quality approach for the e-learning unit, but not necessarily to ISO 9000 specifications (requested by EI management in 2001).
Context	The decision-makers were motivated by the need to investigate quality assurance practice with regard to e-learning, in the quest for continuous improvement of their services and products. There were several issues which were facing the department at the time: a) there had been some valuable intuitive attempts at producing project documentation and quality control mechanisms, which were in need of rationalising and streamlining; b) several projects had to be abandoned and one possible cause for this was lack of emphasis on the analysis stage; c) a management need was developing for the EI unit to be able to provide evidence of quality assurance practices with respect to their e-learning services provided.
Critical Success Factors	The project has achieved consensus and contributed significantly to efficiency and effectiveness within EI. It has been accepted as the benchmark for services provided to clients with respect to e-learning. The most important factors in implementing the quality approach were: 1) adoption of formal online process-based approach with training and continual support to encourage buy-in 2) consensus driven – based on internal ownership; not prescribed by the consultant 3) ISO9000 cognisant - recognising the many useful elements and principles behind ISO9000, without following requirements to the letter.
Actors	• Dr Jill Fresen was requested to co-ordinate the formal quality management approach for e-learning. • Since the theory and practice of quality assurance is a specialized area which is not part of the core business of the e-learning unit, the decision makers agreed to contract an independent quality assurance specialist (Ms Lesley Boyd) to train the operational actors and to provide expert advice and guidance in the establishment of

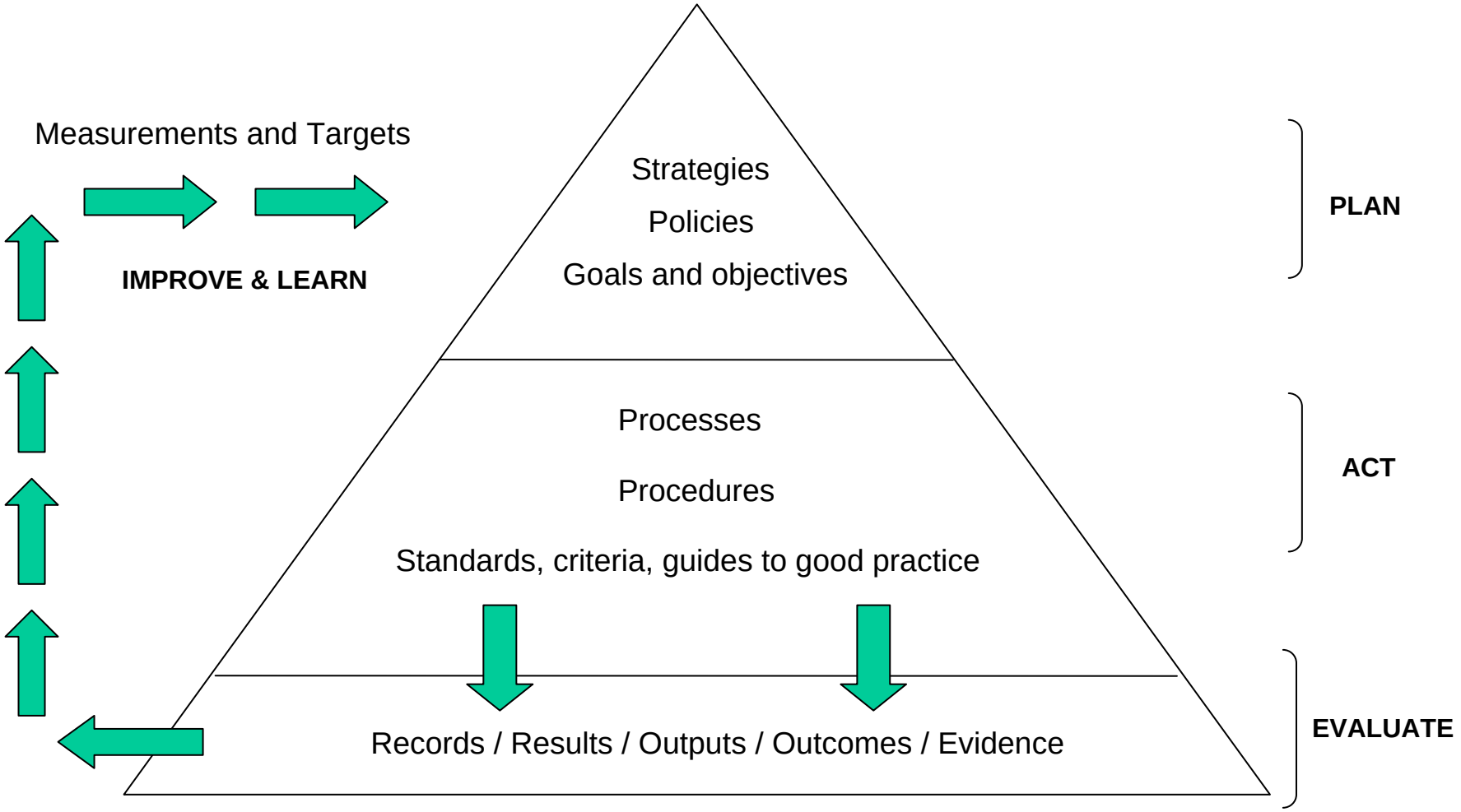
	the QMS. • The operational actors are a team of instructional designers and project managers, who are experts in the design and development of e-learning products, as well as academic staff (lecturers) who implement the products and facilitate learning in the electronic environment.



Environment

- Expectations, needs & attitudes of academic departments
- Library
- IT infrastructure and services
- Institutional culture, strategy policies and procedures

The systemic relationship between the e-learning unit and its environment during the project timeline



ELEMENTS OF A 'LEARNING' QUALITY MANAGEMENT SYSTEM

© Boyd, 2006 – adapted from Waller, Allen & Burns, 1993
and a Plan, Act, Evaluate and Improve action research cycle used by Monash University, Australia

13 Phase 1 : Initiation

Overall Objective	To implement a formal quality approach for the e-learning unit, but not necessarily to ISO 9000 specifications.
Context	The QMS focuses specifically on the **instructional design process** in the e-learning unit. The instructional design process was already represented by a **'project timeline'** based on the Analysis, Design, Development, Implementation and Evaluation (ADDIE) instructional design model. The project timeline was iteratively refined and improved during the course of the project. The objectives of the process-based online QMS for e-learning as suggested by the consultant, were: • To provide a defined framework for all role players to work together consistently along the entire project timeline. • To enable everyone, including new staff, to understand 'the way things are done around here'. • To identify together areas for improvement. • To provide an integrated and simple method to access and use supporting documentation e.g. checklists, forms, templates. • To ensure that the right tools are available to allow for comprehensive checks and to minimise errors. • To try and catch any errors as soon as possible before it's too late or too expensive to fix them. • To evaluate completed projects and help to assess their impact on teaching and learning at UP. • To learn lessons which may help to improve future projects. • To share more with each other about ways of doing things. • To demonstrate to any external stakeholders (e.g. auditors or UP management) that TLEI has a formal quality management system in place to control e-education projects.

13.1 Process Initiation	
Objective	The project was initiated by seeking proposals from quality assurance specialists and organisations. Lesley Boyd produced a proposal specifying the scope and the desired approach for the project, which was accepted by the decision makers. In addition, before the proposal was produced, Jill and Lesley held three 'sharing' sessions exploring the basics of quality management and how this might be applied to the EI environment.
Methods	Lesley provided expertise and experience in the theory and application of quality assurance practices, based on ISO 9000 guidelines, although ISO 9000 certification was not required at that stage by the University. She designed and presented training for the prospective users in the form of a workshop: "Introducing Quality: An introductory workshop on implementing a Quality Management System (QMS)". The workshop was repeated during 2001-2002 for small groups of EI management, project managers and instructional designers. The workshops were designed to educate on the basic concepts, involve everyone and allow them to ask questions, make suggestions and raise any concerns they had.
Actors	• *EI Decision makers* – attending workshops • *Operational actors including all staff members in EI* – attending workshops • *QA Consultant* – designing and delivering workshops
Criteria	Consensus was obtained from the participants via personal feedback and evaluation forms that the workshops were effective: "I really enjoyed this workshop – enough interaction, good balance between drawing on old and new knowledge. Good examples." "Thanks for all your hard work and sensitivity." "A very enjoyable workshop. Knowledgeable and fun presenter." "Not much to improve for such a short time allocated."
Result	The workshops went some way towards sensitising the actors to the issues involved and their responsibilities. The workshops achieved their objective of educating on the basic concepts for all members of EI.
Experiences	• There was insufficient engagement with the management team 'up front' regarding their expectations and responsibilities, and this did not promote sufficient dialogue regarding their concerns throughout the project. • Expectations were raised too highly that guarantees in improvement in the 'outer ring', i.e. in the teaching and learning itself, might result from the QMS being implemented for EI. • There was a time lag in between the workshops and the formation of task teams to write procedures, which caused a certain loss of momentum.

13.2 Process Selection	
Objective	To implement a quality approach with the following characteristics, which were formulated jointly between EI and the QA consultant: **Formal** - documented, auditable and visible to external stakeholders (specified by EI). **Online** - minimise paperwork , reduce perceptions of bureaucracy, minimise circulation of and reliance on obsolete documents (specified by EI and consultant). **Process based** - recognising the importance of understanding the entire ID process from beginning to end, and how an awareness of the process assists both internal and external role players to contribute and work together effectively (advised by consultant). **Consensus driven** - from the outset, based on ownership and involvement of the IDs and project managers; rather than being prescribed or 'spoon-fed' by the external consultant (advised by consultant). **ISO9000 cognisant** - recognising the many useful elements and principles behind ISO9000, without following requirements to the letter or seeking ISO9000 certification; since ISO9000 is often perceived as inappropriate and bureaucratic in HE circles (suggested by consultant).
Methods	The method used to the select the approach was based on the imperatives of the decision makers and the experience and expertise of the consultant. The decision makers and operational actors were already skilled in the use and development of online systems and this was combined with the existing skill of the consultant in implementing paper based formal quality management systems in ICT-related areas. Task teams were constituted to simultaneously document each of the stages in the project timeline as a formal procedure, in a specified format, to form part of the online system. Each procedure contained an objective, procedure steps, people responsible and the supporting documents required to carry it out. The consultant provided a procedure template and self evaluation questions for each procedure, which each of the task teams had to consider. The resulting procedures were then put together like a jigsaw puzzle, to form a complete paper based prototype of the online QMS. The online system was developed by an instructional designer, and the documented procedures loaded into it, along with links to all the specified supporting documents and resources.

Actors	• *EI Decision makers* – specification of desired elements of approach • *Operational actors* – membership and leadership of task teams to document procedures • *Instructional designer* – develop online system • *QMS Co-ordinator* – co-ordinate the work of the task teams • *Consultant* – check procedures and advise accordingly
Criteria	The task teaming method used ensured that all the procedures were formatively evaluated as work progressed, and they were then co-ordinated and checked by the QMS co-ordinator and the consultant. A peer review self evaluation approach was used to achieve ownership and consensus.
Result	• A full set of documented procedures according to the agreed template • Complete paper-based prototype of the QMS • Online QMS populated with procedures, models and diagrams, and supporting documentation
Experiences	There was concern from the decision makers about the length of time and effort that the documentation involved, without sufficient visibility of the added value or benefits. It was difficult for the management team to see the benefits, beyond being a document management system.

14 Phase 2 Implementation

14.1 Process "Needs Analysis"	
Objective	1. To maintain effective relationships with all role players within the institution and within the national higher education infrastructure, in terms of degree programmes/courses. 2. To ensure that correct procedures are followed in the accreditation and evaluation of programmes/courses.
Methods	1. Regular meetings are held between EI and the Unit for Quality Assurance at the University. 2. EI is involved in an advisory capacity in drawing up criteria for programme and module (course) review. 3. EI is involved as a contributor in compiling the institution's self-evaluation report in preparation for national institutional audits.
Actors	• *Department for Education Innovation (EI):* Deputy Director • *Unit for Quality Assurance:* Director and Quality Manager • *South African Qualifications Authority (SAQA)* • *Higher Education Quality Committee (HEQC)* • *National Department of Education (DoE)*
Criteria	This quality project is not directly involved in this process, which functions in the 'outer ring' (see diagram). This quality project focuses on the 'inner ring' and the instructional design process within the e-learning design and production unit.

14.2 Process"Framework Analysis"	
Objective	To ensure that: 1. EI provides sufficient background on our roles, responsibilities and capabilities in order to stimulate productive exploratory discussions and the preparation of proposals by Academic Departments. 2. EI facilitates the submission of a comprehensive and rigorous proposal for each new project requiring funding, in sufficient level of detail required for Project Approval.
Methods	1. he Exploratory Phase engages Academic Departments in stimulation of ideas and expressing their specified needs. 2. A 'show', or demonstration of EI services and products, may be held, to stimulate discussion, to inform academic staff about e-education possibilities, to prompt questions and answers and to allow lecturers to formulate ideas on how they may implement e-education in their Department. A standard Powerpoint presentation is available, which may be used. A Show Evaluation form may be completed by all participants on conclusion of the show. 3. The Needs Assessment Checklist may be completed by EI, in conjunction with the Academic Department. This captures the following information: • Goal analysis • Media analysis • Target population analysis • Task analysis. 4. Once the Academic Department has formulated their requirements, they are required to appoint a Project Leader who produces a Project Proposal. To ensure consistency and facilitate effective project evaluation, the Sample Project Proposal form must be used, and tailored at the discretion of the managers concerned. Guidance for Project Leaders on compiling proposals, seed funding, chargeable tariffs etc, is available on the EI intranet.
Actors	• *Department for Education Innovation (EI):* Group Head; Project Manager; Education Consultant • *Academic Department:* Head of Department or Course Coordinator; Lecturers
Criteria	Supporting documentation is used, such as guidelines for project proposals, the sample project proposal form and tariff lists to ensure consistency, accuracy and comprehensiveness.

Result **Mandatory:** **Discretionary:**	 Completed project proposal  Completed evaluation form from demonstration; Completed Needs Assessment checklist
Experiences	Since the Needs Assessment is voluntary and is, in fact, the responsibility of the Academic Department, in practice it is hardly ever used. One of the reasons is that lecturers are often ill-informed of the nature of their student target population.

14.3 Process "Conception / Design"	
Objective	To ensure that: 1. The design of any product will add educational value to the learning experience. 2. The correct programming approach is selected: • Multimedia: to begin to determine the design specifications; • WebCT: to determine which features and tools of WebCT will be used. 3. Multimedia: A flowchart and storyboard are developed to specify the structure and sequence of the content. WebCT: A template is created to structure and sequence the content, and includes the correct tools to accommodate the needs specified by the academic department/s. 4. A graphic "look and feel" is developed that will suit the particular needs of the product.
Methods	1. Decide on the authoring tool and programming approach to use. 2. Use the product analysis and content provided to develop a flowchart and storyboard / WebCT template for the product. 3. Use product analysis and content provided to decide on applicable media and WebCT tools to incorporate in prototype. 4. Contract (by email so that there is a record of the request) with the graphic division for the development of a "look and feel" for the product. 5. Build the Prototype: • create a small shell to demonstrate navigation options and "look and feel" of the product; • demonstrate the educational value added by including an example of each envisioned element of the product, e.g. different question types available in a multimedia product, the use of the tools within WebCT, graphics, photo's and videos. 6. Complete the Multimedia Design Specifications document as far as is possible at this stage. 7. Share any new knowledge about good ways to do things with other instructional designers during the demo of the prototype (peer review session).
Actors	• *Department for Education Innovation:* Project Manager, Instructional Designer, Graphic Designer. • *Academic Department:* Content Expert (Lecturer).

Criteria	A prototype is developed to demonstrate the educational value added, the functionality and the proposed layout, navigation and structure of the final educational product.
Result Mandatory:	 Multimedia Design Specifications document or WebCT customized template; Flowchart & storyboard (multimedia); Prototype of the educational product
Experiences	This procedure is really necessary to ensure client approval of the prototype, before development of the entire product is begun – it saves wasted time and effort later in the form of re-working aspects that were not properly agreed on.

14.4 Process "Development / Production"	
Objective	1. To obtain all necessary content/media from the applicable person/s. 2. To develop online course/s based on an applicable prototype that adheres to agreed design principles with respect to screen, web, graphics and video, where applicable. 3. To discuss with the lecturer, based on their specific needs, which online tools should be used and incorporated in order to facilitate and promote learning. 4.
Methods	1. Refine prototype after the prototype has been demonstrated to the lecturer/s. 2. Obtain final language edited study guide from the lecturer. Check whether it adheres to the "Minimum Requirements" document, and negotiate if necessary. 3. Decide on a suitable format to present the material, e.g. a single PDF file containing the complete study guide, an HTML design consisting of web pages, or a combination of both. Consider the Content Module tool which provides course content to students through Table of contents (see supporting documentation for step-by–step handout). 4. The Graphic Designers are responsible for producing all the necessary graphics, banners and icons for the module/s, and must send these to the Instructional Designer as soon as possible. 5. Media such as photos, video, sound and animations must be negotiated with the designers and photographers. 6. Integrate the content, graphics and media into an appropriate format that will work in the electronic environment. 7. Necessary changes / additions with regard to content, graphics and media should be communicated to the relevant parties as soon as they emerge during the development of the module/s. 8. Changes or updates from year to year are negotiated with the individual lecturer or in the Project Review meeting (see Summative Evaluation Procedure).
Actors	• *Department for Education Innovation:* Project Manager, Instructional Designer, Graphic Designer, Photographer. • *Academic Department:* Project Leader; Content Expert (Lecturer). •

Criteria	1. Regular project meetings are coordinated by the Project Manager to ensure deadlines are being met and the client is satisfied with progress. 2. Concerns and issues that arise are communicated to the Project Manager and Project Leader. 3. Peer review is carried out to ensure that Design Standards and Principles, Screen Design Guidelines and Video Design Standards are adhered to (see supporting documentation). 4. Formative evaluation should be continuous throughout the design and development process.
Result Mandatory:	 Completed online module/s
Experiences	The design and development team works well with the content experts. One problem is lack on time of the part of lecturers to really get involved in the provision of content and the evaluation of the developing product.

14.5 Process "Implementation"	
Objective	To ensure that: 1. An e-learning project is successfully implemented. 2. Pro-active steps are taken to ensure smooth implementation. 3. Clients' needs are met. 4. Successful summative evaluation can take place.
Methods	1. Transfer online module from development server to production server. 2. Reset course and backup existing course. 3. Set up access control in Lecturers Online. 4. Instructional designer is the access controller. 5. Organise student orientation session if required. 6. Make final changes as necessary after student orientation session. 7. Give access to lecturers, Academic Information Specialist and Education consultant (optional). 8. Give lecturer support in accessing online course. 9. Make sure that Project Database is up-to-date regarding project and online course. 10. Organise final Quality Assurance session after all changes/corrections have been made
Actors	• *Department for Education Innovation:* Project Manager, Instructional Designer, Web administrator, Project Database Manager, Education Consultant (optional). • *Academic Department:* Project Leader; Content Expert (Lecturer). • *Library:* Academic Information Specialist.
Criteria	Any problems related to implementation must be solved and feedback given to user (e-mail or telephone).
Result Mandatory:	 Online course created on production server
Experiences	It is vital to establish high-level and reliable service from the organization's IT department, with respect to server load and performance. Weekly down-time sessions will probably be required for systems maintenance and backup procedures .

14.6 Process "Learning Process"	
Objective	1. To enhance the actual learning that takes place when the student uses not only the e-learning product, but engages in the entire blended learning experience. 2. To assess the actual learning that takes place by means of sound assessment practices.
Methods	Depend on the Academic Department and Lecturers involved.
Actors	• *Department for Education Innovation (EI):* Education Consultants (advisory capacity, on request). *Academic Department:* Lecturers, Students
Criteria	1. Depends on the Academic Department and Lecturers involved. An outcomes based education (OBE) philosophy is encouraged, in which course-specific learning outcomes and assessment criteria are specified in structured study guides. 2. With regard to the e-learning product, a client satisfaction survey is administered online to students at the end of each semester, to measure their satisfaction and experience in using the e-learning product (the WebCT Experience Survey). With regard to services offered by EI, a client satisfaction survey is administered on paper to lecturers, when necessary.
Result	Dependent on many varied factors, such as institutional, technical, pedagogical, instructional design, lecturer and student factors.
Experiences	This process takes place in the 'outer ring' (see diagram), namely the Academic Departments at the University and other role players, such as the Library and other student support services. This quality project focuses on the 'inner ring' (i.e. the e-learning design and production unit). EI is of the opinion that we should *not* be involved in the evaluation of the learning process. We cannot be seen as the supporter and 'policeman' at the same time. Evaluation of teaching should be within the line structure and lies with the head of department. The QA process of teaching and learning should be done within the faculty. We can only support the process, by assisting lecturers to prepare evidence for evaluation in their departments.

14.7 Process "Evaluation / Optimization"	
Objective	To ensure that: 1. EI obtains regular feedback from clients, in order to continuously improve our e-learning products, after implementation and in preparation for the next year. 2. EI assesses the added value we contribute to the teaching and learning process, in terms of e-learning. 3. EI builds up a collection of client satisfaction data and management information for further research projects.
Methods	1. The WebCT survey is made available in English and Afrikaans to students from a link on Student Online Services (SOS). This takes place two weeks before lectures end, and it is available until the official end of the semester. 2. The survey includes a "Dear Student" message to encourage students to complete it. There is no other incentive. 3. The Programmer removes the survey link after the end of the semester and emails the data in both Excel and html format to the Training Co-ordinator. 4. The link to the html data is distributed to: • EI Management (Executive Committee, Group Leaders, Project Managers and Research Co-ordinator) • Instructional Designers • Academic Information Service (AIS). 5. The Training Co-ordinator needs to distribute the results of the WebCT Experience survey to lecturers. (Investigate how to do this – campus wide email could adversely affect the server if too many lecturers access the link at the same time.) 6. The Training Co-ordinator needs to distribute the results of the WebCT Experience survey to students. Currently this in done only via an article in the student newspaper – there is a need to investigate wider distribution to the student body of the findings and the actions taken.
Actors	• • *Department for Education Innovation (EI):* Programmer, Training Co-ordinator • *Academic Department:* Students •
Criteria	Student feedback data is shared with Project Leaders, Instructional Designers (and ideally Lecturers), in order to optimize the e-learning products.

Result Mandatory:	 Results of survey in Excel format Results of survey in html format
Experiences	The evaluation of student satisfaction is at the first of Kirkpatrick's (1998) four levels, namely "perceptions". The instrument is a voluntary, anonymous questionnaire, evaluating the entire online learning experience and not the quality of individual courses. Response numbers have declined recently and we need to investigate some sort of incentive, to increase the response numbers. A further planned refinement is the integration of summative evaluation of e-learning, with the institutional evaluation and review of study programmes. The latter is currently being considered in preparation for the external quality audit of the University of Pretoria by the Higher Education Quality Council (HEQC) in 2007.

15 Phase 3 Quality Development

Objective	A well functioning online QMS has been established, which is integrated into the day-to-day working life of its users, and contributing to efficiency and effectiveness improvements. The challenges are: 1. To safeguard its continued operation during migration to the new version of WebCT Vista. 2. To establish closer communication links between the endeavours of EI to evaluate e-learning as a mode of delivery, and the evaluation of the teaching and learning process itself by the academic departments. 3. To develop and close the feedback loop between measurements from client feedback, and identified and prioritised improvement actions, which must then be implemented.
Process: Quality Development	Take steps to integrate summative evaluation of e-learning, with the institutional evaluation and review of study programmes. Involve decision makers, operational actors and students in a more consistent, procedurised way.
Methods	1. Continued use of the WebCT experience survey. 2. Investigate methods to improve dissemination of results to lecturers and students. 3. Support lecturers to prepare evidence for evaluation and review in their departments. 4. Be involved in departmental programme review processes as appropriate.
Actors	• *Department for Education Innovation:* Deputy Director, QMS Co-ordinator, Project Managers. • *Academic Department:* Project Leaders, Lecturers, Students.
Criteria	Over the longer term, this phase will require the continued operation of the QMS, by ongoing recognition of its practical value by the decision makers, and by their further proactive involvement in evaluation, review and closing the feedback loop.
Result	The expected result of this stage would be closer integration between the activities in the 'inner ring' and the 'outer ring', more consistent distribution of the results of the WebCT experience survey to both lecturers and students, and more visibility to lecturers and students of findings and actions taken. In the coming year, the EI unit aims to become more closely involved with the institutional evaluation and review of study programmes, and the implications for e-learning components, both of which are driven by academic departments.

16 Further Information

Additional resources	There are two key documents which firstly describe the practical details of the implementation, and secondly the research questions and findings as a subject for doctoral research. c. The implementation is described in FRESEN, J.W. & BOYD, L.G. (2005). Caught in the web of quality. *International Journal of Educational Development*, 25(3), 317-331, available online from the Elsevier database at www.sciencedirect.com. d. The implementation and surrounding research issues and debates are described in FRESEN, J.W. (2005) Quality assurance practice in online (web-supported) learning in higher education: an exploratory study. PhD thesis, University of Pretoria. The thesis is available at http://upetd.up.ac.za/thesis/available/etd-02172005-134301/ These documents describe the details and methods of the quality approach, the user groups involved, the development of the project from its inception in 2001 and the phases of implementation up to October 2003 when the formal online system was launched. PowerPoint presentation: WebCT Europe 2006 Conference: http://www.webct.com/europe2006/viewpage?name=europe2006_pres_1march#1 (scroll down to : **Quality Management of e-Learning: An Integrated Approach**)