

Inculcating an innovative culture of e-learning at the UoM: The case study of a GEM module on "Educational Technology and Computer-Based Learning Environments"

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Abstract

This project is about the conception, design, delivery and evaluation of a blended module that is offered as a GEM (General Education Module) university-wide to undergraduate students. The blended nature of this innovative module is reflected in a 70% online, 10% printed material and 20% face-to-face component. The name of the module is "Educational Technologies and Computer-based Learning Environments" and the innovative features of the module are illustrated in the

- Nature of the module itself
- Mode of delivery
- Assessment modality
- Pedagogical conception

The module has already been prototyped over two semesters and has undergone 3 version changes. Version 1.0 was released in Semester 1 of academic year 2005/06 while version 2.0 was released in Semester 2 of academic year 2005/06. Version 3.0 is currently being prototyped in this current semester (semester 1 of academic year 2006/07).

This paper underlines the major phases of the courseware development process for the said module. It describes the innovative and somewhat controversial educational approaches and philosophies underlying the design rationales of the course designer and lecturer, and discusses the observations made on the field with the students. It furthermore demonstrates how feedback can be useful in an iterative process of continuing enhancement through versioning of the courseware. Finally, it demonstrates that although a more democratic, open and flexible method is adopted throughout the delivery of the module, quality is still maintained. The key lies in the redefinition of the word 'quality' to fit in the reconceptualisation of the teaching and learning process in the context of this module.

Introduction

E-Learning, technology-enhanced learning, blended e-learning and concepts like computer-mediated pedagogies are currently emerging fields in education that is receiving widespread attention from educators, researchers, teachers and practitioners all over the world. The number of national and international e-learning/computers conferences in education conferences are increasing yearly where presenters expose lots of new and innovative ideas, revolutionary and sometimes controversial practices, and systems/technologies that have been developed to facilitate the implementation of these new modes of education.

E-learning at the Virtual Center for Innovative Learning Technologies is currently in a phase that is mainly **process-driven**. The generations of technology-driven and/or content-driven e-learning systems are no longer seen as having major roles in the teaching and learning process. This is supported by the fact that more and more open-source learning management systems are available and open-courseware initiatives are undertaken by institutions like the MIT (Massachusetts Institute of Technology). The focus therefore is on sustaining innovative educational processes that guide the students in the learning processes grounded mainly in socio-constructivist contexts. The integration of technology in learning, needs to address the very important issue of enhancing the teaching and learning process, rather than just being seen as a new flexible delivery medium (Nichols, 2003). In other words, it offers a new paradigm for learning.

The module is therefore delivered neither through the traditional classroom-based delivery nor through the classic e-learning approach (first and second generations). The belief is that classic e-learning through well-structured platforms, diffusion of contents online with structured chapters and classic activities such as open-ended questions and Multiple Choice Questions defeat the purpose of using e-learning technologies to foster innovative pedagogies and to promote knowledge construction and autonomous development of the student (Santally & Senteni, 2004). The occurrence of successful learning in this module is therefore defined as a three-phased activity: (a) Knowledge Acquisition phase; (b) Knowledge Application Phase; (c) Knowledge Construction through Sharing and Reflexive Practice.

From an activity-theoretical point of view, learning is being reconceptualized in the sense that the course contents are no longer the object of the activity but they are perceived as tools to help learners achieve the object, which is now some skills, or competencies that they need to develop. The framework that governs the setting up of this module is therefore based on the educational ecology concept (Santally, 2005) where teaching and learning is re-conceptualized as an activity framework governed by the following rules:

- **Self-Reliance:** Act using the resources available locally using for example our learning object repository.
- **Empowerment:** Enable subjects to react immediately to changing circumstances by having access to decision-making.
- **Interdependence:** Obtain resources elsewhere in order to act, to mutualize [human] resources using Internet, and peer-networks.
- **Asynchrony:** Enable subjects to operate as quickly as possible, given local circumstances.
- **Reflexivity:** Enable critical thinking and creativity to continuously improve current practices.
- **Commitment:** Regulate social interaction, reciprocity and collaboration for knowledge construction and sharing.

These principles are by default in logic of favoring openness, flexibility and innovation. This implies that traditional instructional design and curriculum development techniques are no longer applicable to this context since these are well-structured and rigid methodologies that put the course designer and the learner in defined and limited boundaries that would hinder innovation, creative skills development and initiative-taking that would lead to knowledge creation processes.

An Activity-Theoretical Approach to Pedagogical Design of Learning Scenarios

Activity-theory is one of the main developments that characterize contextual approaches to cognition. The cultural-historical theory of activity was initiated by a group of psychologists in the 1920s and 1930s. The basic concept of the approach was formulated by Lev Vygotsky (1896-1934). According to Vygotsky, psychology in the 1920s was dominated by two unsatisfactory orientations, psychoanalysis and behaviorism. Vygotsky (1978) formulated a completely new theoretical concept to transcend the situation: the concept of artifact-mediated and object-oriented action. A human individual never reacts directly (or merely with inborn reflects) to environment. The relationship between human agent and objects of environment is mediated by cultural means, tools and signs. Human action has a tripartite structure. Activity theory (figure 1) has been successfully applied in different research domains (Taurisson & Tchounikine, 2004; Korpela *et al.*, 2001; Collins *et al.*, 2001) as the main theoretical framework to model human activity systems and it is successfully applied to the present context.

In the context of process change, Engestrom (2004) postulates that the most demanding and promising developments are associated with the emergence of a *co-configuration* work. Furthermore, he adds that a critical pre-requisite of co-configuration is the creation of *customer-intelligent services* (in the present case, *learner-intelligent services*), which adapt to the changing needs of the user. In fact, co-configuration requires flexible 'knotworking' in which no single actor has the sole, fixed authority- the center does not hold (Engestrom *et al.*, 1999).

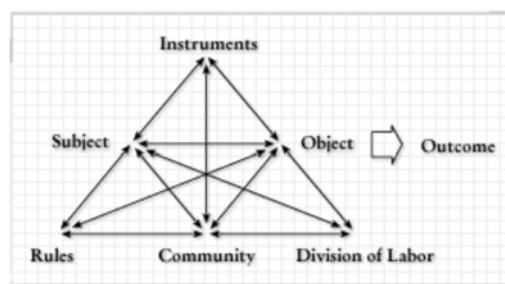


Figure 1. The structure of human activity (Engestrom, 1987)

Figure 2 illustrates the application of the activity-theory framework to the design of the current learning environment for the module. The outcome of the whole process is characterized through demonstration by the learner of the competencies he achieved during the course.

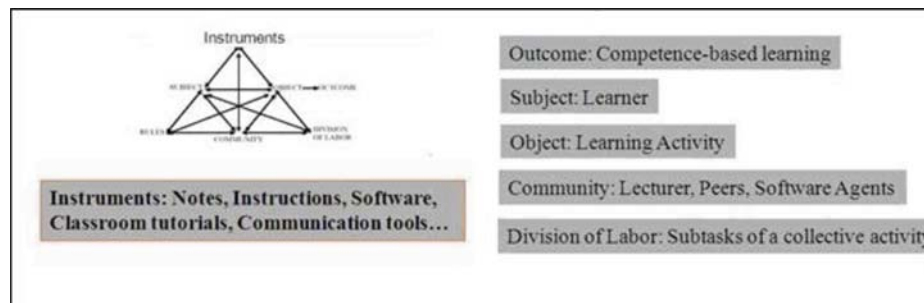


Figure 2. Activity theory in context

The object that the learner will work on becomes the learning activity governed by some general (fuzzy) rules. The learner has the support and interacts with the learning community that includes the lecturer, peers and other information sources. Most of the interactions that take place with the community are done via the virtual forums. Finally, the "instrumentation" of the activity is the key component to help the learner achieve the outcome; lecture notes, software tools and tutorials, communication tools like email, forums and to a less extent chats are available to the learner.

Since a co-configuration setting is a complex system to put in place, it is not unusual for such a system to fail. A pre-condition of successful co-configuration work is a dialogue in which the parties rely on real-time feedback information on their activity. The interpretation, negotiation, and synthesizing of such information between the parties requires new, dialogical and reflective knowledge tools, as well as new collaboratively constructed functional rules and infrastructures (Engestrom & Ahonen, 2001). The instrumentation of the activity in fact provides a shared collaborative space that enables dialogical conversations to take place between the actors in the process. This space is also used to resolve existing conflicts, differences and problems within the actor community while working towards the object.

Division of labour can occur in a variety of ways depending the pedagogical scenario that is being applied. Learning activities and projects can be done either individually or in teams. However, in both cases a number of inter-actions have to take place. Interactions can occur in the form of collaboration, cooperation or individual learning in collective endeavours. While these terms are often used interchangeably in different educational contexts, Schneider (2003) makes distinctions between them. The common factor between these forms of team work is that they involve a group of individuals and the main difference lies in the form in which the work is carried out. Roschelle & Teasley (1995) distinguish the difference between cooperation and collaboration as

"**Cooperative work** is accomplished by the **division of labour** among participants, as an activity where each person is responsible for a **portion** of the problem solving...".

whereas **collaboration** involves the "... **mutual engagement** of participants in a **coordinated** effort to solve the problem together."

Therefore, in cooperative work, it is obvious that there is a high level of independence between participants as the quality and success of the final product depends on the quality of each individual contribution in the work. On the other hand, in collaborative work, the feeling of being together, the sharing of ideas and experiences as well as iterative processes to construct and maintain a shared conception of a problem (Roschelle & Teasley, 1995) is important.

Paving the way towards open educational resources (OERs)

Open educational resources can be defined as digitized materials that are available for free use by educators, students and any other relevant stakeholders for use, reuse, and modifications mainly for educational purposes (<http://www.wikieducator.org>). The OER concept relies on resources that can be classified into categories such as learning content, tools and implementation resources. Developing OER materials is not and need not be seen as separate chunks of individual work but should rather be considered as a collaboratively shared endeavor in which the final product (for instance learning content) is not the ends but the means to provide the emergence of a process-oriented educational philosophy.

In this context, the pedagogical conception of the module is fully compatible with the current OER approaches. The aim behind developing the content of this module as open educational resources is to publish it on the Wikieducator platform (<http://www.wikieducator.org>), a community resource supported by the Commonwealth of Learning (COL) for the development of free educational content. This would help create a repository of quality open learning content that will be accessible freely to learners and educators from mainly economically deprived countries in Africa and the Commonwealth. Finally since quality of open learning content that is freely available is always a concern, it is worth mentioning that this module has been developed to meet the needs of local context under a quality assurance process. Contributing such material to the open and online learning community is therefore an intelligent way of ensuring that published materials adhere to the basic minimum standards required.

The Instructional Design Process of the GEM Module

The concept of instructional design is traditionally linked to the design of distance education courses and a number of life cycle models have been proposed and used by various institutions involved in distance education. These models focused mainly on well-structured stages of an iterative courseware development process ranging from needs analysis to evaluation of the instruction. This is the perfect analogy with the well-structured software development life cycle models such as the waterfall lifecycle. Furthermore, these traditional instructional design models present the same drawbacks and problems as found in the waterfall model that forced software engineers and researchers to adopt more contemporary models that would solve the problems encountered. Instructional design models also follow this rigid, sequentially phased one way model to design courses. Once these courses are designed and feedback gathered after delivery, it is very difficult to implement these changes without having to start a quite long process again. On the other hand, such approach tends to neglect the learner and is more process-centered. While designing online courses, the instructional design process should focus on three key components that would guarantee successful implementation of innovative pedagogies. These are:

- Pedagogy
- Technology
- Usability

This concept of the usability-pedagogy-technology triad forms the foundation of the instructional design framework that governs the conception of this module. They have to be in ideal harmony since each of them is interdependent on the other two factors.

Pedagogy

It is postulated that the interest that has been expressed for rich activity-based pedagogical scenarios have the objectives of creating more in-depth, integrated and applicable knowledge in different contexts (Schneider, 2003).

From a pedagogical point of view, the module has been designed using an activity-based approach focused on the acquisition and application of specific competencies in a real world setting to provide an authentic learning context to the learner. The competencies that the learner would acquire is three-fold namely subject-specific skills, information technology related skills and general learning skills.

The **subject-specific** skills are:

Cognitive (Thinking) Skills

- Describe the various benefits and drawbacks of introducing technology in the teaching and learning process.
- Describe the different technology-based tools that can be used to support the teaching and learning process.
- Understand the concept of instructional design as applied to e-learning environments.
- Analyze how technology can be used to provide pedagogical support to students in different scenarios.
- Evaluate e-learning environments from a pedagogical and human-computer interaction perspective.

Psychomotor (Practical) Skills

- Model an e-learning module using an Instructional Design Tool.
- Design an e-learning module prototype using a simple tool like Microsoft PowerPoint.
- Implement a simple website based on the prototype e-learning environment.

The **information-technology** related skills are:

- Communicate through email and online forum systems.
- Use of presentation and web-editing software like Microsoft PowerPoint and Macromedia Dreamweaver.
- Knowledge of the Internet and use of simple search engines like Google.

- Use simple techniques of file compression like Winzip to reduce file size.
- Work with different file formats (JPEG, GIF, PDF).

The **general learning skills** are related to how the students manage their own learning through flexible time management and scheduling, autonomy and self-discipline. These skills are imparted to the student with the objective to make them better learners.

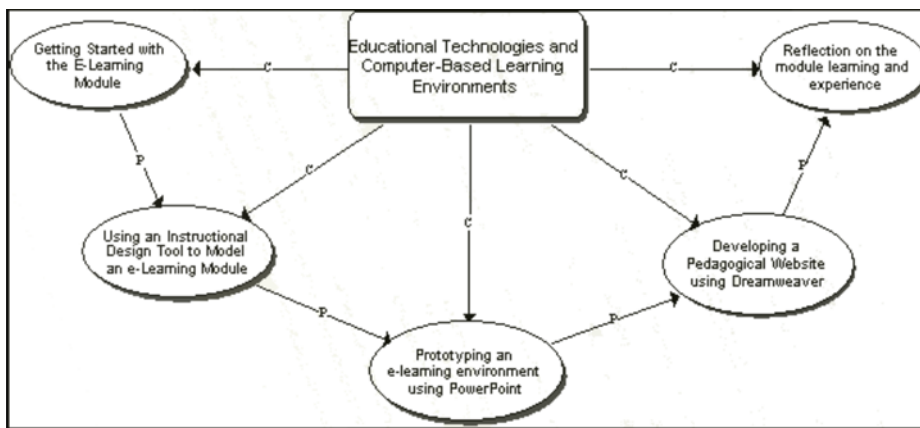


Figure 3. Overall structure of the module using an activity-based approach

The module consists of five activities (illustrated by the 'c' link) that need to be carried out sequentially (illustrated by the 'p' suggesting that one activity precedes the other) throughout the semester. However, there is also a continuous assessment activity that consists of forum participation that is transversal to every other activity included in this module. Activity 1 is not marked. However, since participation on forum spans overall the module, student's intervention on the forum for this activity is very important. All the other activities [2-4] carry equal weightage in the assessment process. Activity 5 is marked similarly to activity 1 that i.e. forum participation is essential in these two activities. Students who do not participate on the forum for these two activities will get no marks for forum participation even if they actively participate on other issues. Figure 3 illustrates how the module is organized in terms of activities.

The guiding principles governing this approach rely heavily on a learner-centered approach focus on flexibility, autonomy and commitment of the learner towards the learning process. While the learning activities should incorporate well-structured scenarios, the teacher is seen as a "facilitator, orchestrator and manager" in such a learner-centered environment (Schneider, 2003). However, a flexible approach needs to be adopted while structuring the activities. For each activity, there is a tentative plan that is given to the student to guide him through the weeks over which the activity spans (figure 4 & table 1).

Figure 4. An activity as structured in Moodle e-Learning environment

However, the student can change or adapt the plan according to his/her own preferences and decides on his/her own (most of the time negotiated with the teacher) how to allocate his/her time and effort on the different steps of the activity. The essential thing is that the student completes the learning activity and achieves the established learning outcomes.

Table 1. Tentative activity plan suggested to the student

Tasks	Modality	Week	Duration	Exchanges	Notation
2.1:Initiation to courseware modelling with MOT	Individual	2	7 hr.	Forum: Modelling an e-Learning Module	none

2.2: Tutorial on Instructional and Pedagogical Design	Individual	2-4	7 hr.	Forum: Modelling an e-Learning Module	none
2.3: Elaborate the courseware model	Individual	5-6	6 hr.	Forum: Modelling an e-Learning Module	15 %

Technology

The technology component of the course is a key factor to its success as its main role is to support the underlying pedagogy that is being adopted. In many cases, the technology is a factor that guides the pedagogy that should be applied and this is according to us a mistake. Although there is a need to make sure that there is the right technology to support the pedagogy, it is always the pedagogical strategy that guides the technology to be applied. For instance, it is not because there is a Wiki tool that the teacher should use it in his course. If the teacher finds that a Wiki can bring added value in a particular aspect and is relevant to the context of his course, then he should do it. This kind of approach (that is of making sure to use every bit of functionality) is detrimental to the flexible and innovative nature that e-learning brings in the process.

Another example is that of the Quiz editing facility. The Quiz editing facility is common to most e-learning platforms and many educators, from personal experience, make it a must to include quizzes in their courses. This is completely out of phase with the philosophy adopted in a project/activity-based learning approach. The final example that is worth mentioning here is the online chat facility. While it is known that some educators involved in online learning and related areas would see to it that they organize regular (weekly) and structured chat sessions, others may be more lenient on this basis. Making structured chats and marking that specific activity can be seen in analogy with taking attendance in the classroom! Nothing would have changed if the same practices are just reconverted and maintained in the e-environment. There is little we can say about innovation in such cases.

The technology in the first version of the module was print-based, electronic through a CD-ROM and an online forum to discuss on each activity. The print-based component was a student guide on how to get started with the courseware. The print material also contains necessary instructions on how to use the different software and forums of the course. At this stage, it cannot be assumed that the student is familiar with the technological environment of the course. Getting started well with such a module is a critical success factor for the student. In the second version of the module, a website has been added to the resources and in the third version of the course was also hosted on the Moodle e-learning platform. To summarize, the technology is merely but very importantly the facilitating aspect in the process. In fact, in every version of the courseware, technology acted as the main co-configuration platform (forums for version 1 & 2 and forums and the Moodle e-learning platform for version 3).

Usability

The traditional distance education era gave rise to a new group of professionals called instructional designers. Their role has always been crucial to the success of manuals in terms of readability and understandability by students. They advised content experts how to better structure sentences, where to make a pause and ask a question and when to cut short of a chapter and start the next. In the online environment, their role has been extrapolated to a usability expert/engineer, as there is a need to ensure optimal interactive experience of the learner with the learning environment.

"Usability is often associated with the functionalities of the product (cf. ISO definition, below), in addition to being solely a characteristic of the **user interface** (cf. framework of system acceptability, also below, which separates *usefulness* into *utility* and *usability*)."

<http://en.wikipedia.org/wiki/Usability>

Usability is all about a paradigm shift from technology-oriented product design to user-centered design (Holzinger, 2005). The design of the interaction between the student, the machine, the courseware and the peers (fellow students and teachers) is a very important phase in the instructional design process. Usability engineering of a course should not be confounded with graphic design aspects of the website. Having high quality graphics, animations or sliding menus does not necessarily result in a well-engineered course from a usability/human-computer interaction perspective. The practice of simplicity to maximize usability is a well-known factor (Nielsen, 1999). Usability consideration while designing an online course has also many other implications of perception, memory and cognitive psychology. A courseware developer needs to be aware of individual differences since not all users are the same (Ayersman & Minden, 1995).

Usability applies to every single process from conception to implementation and testing of the module. It is an ongoing process that starts with usability engineering, applying usability heuristics during design, usability testing with users and starting the process over again in an iterative lifecycle. This iterative or (spiral) lifecycle allows for a continually improving process leading to the refinement of the learning process and enhancement of the learning experience of the learner. This learner-centered approach as applied to the conception of the module has led to three different versions as shown in figure 7.

Delivery & Student Support

The first session of such a course is always the most important factor in motivating the learners for the rest of the module. This is why this session is always carried in a face-to-face session. In the session, a complete overview of the activities is made to the student and a tutorial about using the learning platform is carried out. At this stage, the students feel a bit unsure of the correctness of their decision to join in such a new kind of learning environment.

The only reason that explains this uncertainty is the prevalence of an exam-oriented culture that influences the way students learn. This session is the only 'official' face-to-face session of the course and once this step is over, students start working on their own in the new virtual setting.

The main student support tool is the online forums. For each activity that the student has to carry out, a

forum is available for discussion with peers and the tutor(s). The forum has proved to be a very useful tool throughout the different cohorts as appraised by the students themselves. The asynchronous feature of the forum proved to be beneficial to students with different styles of learning and perfectly adapted to Kolb learning cycle (Kolb 1984). The high number of posts on the forums for this module was not expected and one possible explanation is that the 15% continuous assessment weightage played an important role. Forums have proved throughout the semesters to be a discouraging factor to competition and promoting more of a sharing, mutual support and culture of collaboration among learners.

Users browsing this forum: [mohammad](#)

[new topic](#) VCILT - University of Mauritius Forum Index -> e-learning Prototype using powerpoint [Edtech

Topics	Replies	Author
Sticky: Prototype Content [D Goto page: 1 , 2]	16	Vashini
to mr Santally	0	vishal
activity3	0	raimuni
Help!	11	varuna
No. of slides??	3	varuna
hyperlinks	1	irishnee
activity 3	1	roodrani
problem wiz deamweaver	9	irishnee
melissa	2	ERADHUN

Figure 6. Thread Discussions showing views and replies from students

Mutual peer-support throughout the semester has been more frequent than teacher-support online. The trend that has been noticed was that teacher intervention and teacher-learner interaction online became minimal while learner-learner interactions increased (figure 6).

For a few students who were late for registration on the module, there was no face-to-face meeting because there was no request made and also the need was not felt. Those students would pick up as they had classmates who were enrolled in the same module who guided them. However, those students seem to rush through Activity 1 and in general, scored less than the average mark for Activity 1 and some even failed to score 50% in Activity 1. It was also noted that they took a lot of time to get use to the learning environment. For example, in certain cases, they were not able to recognize that messages should be posted appropriately on discussion forum. At the start of the module, many found it exciting, as there was no class as such to attend. Some students found it appropriate due to the fact that they were on work placement and a traditional module would not suit their availability. At the beginning, there was a general feeling of difficulty in adapting to the transition from typical classroom type to e-learning.

Despite an orientation session on the first day, which was held at the VCILT, many students felt that there was a need for one or two additional face-to-face sessions including one in order to introduce themselves to the lecturers and friends. However, it was noted that at the end of the semester some of the students were proud to have been able to communicate exclusively online with students they did not meet throughout the whole semester

Students' feedback on the learning process

In a learner-centered environment, students' feedback is a very important factor in the quality assurance process. It is also the driving element to promote reflectivity and critical thinking on and during the learning process. It enables both reflection-in-action and reflection-on-action to take place. However, it is also necessary that students get to know that their feedback are valued and taken into account to make them adopt a more constructive and objective approach in the process. Furthermore students' feedback in this approach is not anonymous. Maintaining anonymity in the process kills the negotiated and collective approach to make the course better as it does not treat all stakeholders as equal.

This concept is contrary to the co-configuration setting that was applied. Anonymity is seen to protect the one who issues the comments but it does nothing to protect the recipient from malicious and quite often defamatory comments. After all what is necessary is to impart a culture of mutual trust where every stakeholder needs to be able to assume his/her own responsibility. The students' feedback in this module was classified in three categories namely; (1) Learning experiences related feedback, (2) Learner support related feedback and (3) course content related feedback.

This activity takes place on the forum throughout the whole semester. Students are also encouraged to keep an online journal (blog), which they can continuously update with their reflections. The main questions that students are required to answer (see Appendix) for this 'learning activity' are:

Learning experiences related feedback

- What are your views about where you were at the beginning and what you have personally achieved in this module?
- How did you find the learning experience in this module? What are the major problems you encountered when you tackled each activity? What are things you found easy?
- What you liked or disliked especially with respect of this new mode of delivery?

Learner support related feedback

- Did you find most of the answers of your questions on the course website and forum?
- To what extent did tutor and peer interactions helped you in the course?
- Did you find that the frequency of interactions online was enough to solve your questions on time?

Course content related feedback

- How you think this module will help you in the future?
- How the module can be improved in general?
- How would you describe clarity of module contents and instructions?

Implications of an innovative culture

Quality assurance re-defined

The main barrier to such an innovative way to reconceptualise the teaching and learning process is the quality assurance procedures that need to be 'strictly' followed. In a traditional lecture, quality is believed to be maintained if the lecturer spends 3 hours in the classroom irrespective of what he does or not. This is proved by the log book in which he signs. In another context, quality is maintained if students' results follow the normal distribution and if academic/administrative records related to the course are duly kept. Furthermore, quality is considered maintained if feedback forms are given, at the end of the semester, to students who fill in most of the time in a subjective way. This perspective of viewing quality poses a problem for bringing innovation and creativity in the learning process. Quality is a non-referential concept and quality assurance techniques that are applicable in behaviorist learning environments are not compatible in socio-constructivist ones. The quality framework that can be applied depends on the learning design approach to be adopted. Quality assurance needs to be an ongoing and iterative activity and student feedback on their own learning (problems encountered, things that were easily understood, communication problems and other related issues) contribute towards making them better learners and develop the required competencies (Figure 7).

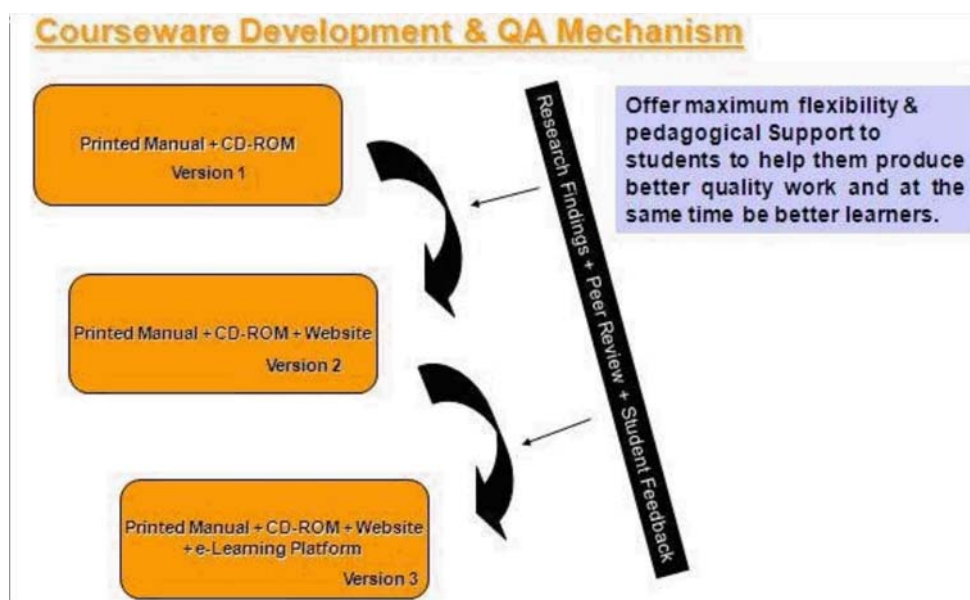


Figure 7. Quality assurance mechanism

As can be seen from the quality assurance mechanism, the third iteration of the courseware development process is on. An improvement has been brought to each version of the courseware based from student feedback on the previous version. For instance, students found added flexibility was provided with the website as they could always access it in the computer labs if they did not bring their CD-ROM and manual with them on campus. Finally version 3 came into operation when some students were confused about where to go for contents, a different address for forums and problems of registration on specific forums. In the third version, MOODLE is used as an integrated learning content management system. It was still found that the students would want all four options for maximum flexibility.

Change in mindset and prevailing academic cultures

It is argued in this paper that the center does not hold in a co-configuration setting. Indeed the teacher is no longer seen as an authoritative and dominant figure in the teaching and learning process. This is currently the main barrier in bringing innovation in the educational processes. The fear of a loss of authority makes academics argue of all sorts of problems related to quality, student behavior and other related issues. In this rapidly evolving era, the academic commands respect by showing respect to the students and by treating them as capable and responsible individuals. The real drive is not based on strictness/severity or penalizing the learner but on being able to motivate the learner and to convince him/her where his/her interests lie. The educational process should be a mutually negotiated and reflective activity between all stakeholders of the process. The problem in the educational sector is that everyone talks about reforms and the need for innovation and creativity but most often little is concretely done from a policy-makers' perspective to bring these in effect. The existing and new procedures making examinations processes more rigid and more secure, well-defined frameworks for teaching and learning, and bureaucratic approaches to quality assurance leave little room to bring innovative educational approaches to a larger scale than killing it at the prototyping stage itself. On the other hand, the learners need to be able to detach themselves from the binding examination conditions that are ever present in their minds. Students are always bothered about 'what' to 'learn' for the exams. To promote an innovative culture of learning and to foster creativity in students' work, examinations impose a too rigid structure that must be followed correctly to guarantee success. It is high time to review the weightage assigned to written supervised examinations in the assessment process. Allocation of more marks to learning activities would motivate the students to concentrate on the acquisition of competencies rather than the assimilation and reproduction of 'inert' knowledge in the exams.

Accepting that fuzziness in the instructional design process is an important element in bringing innovation

There are currently many instructional design models that have been successfully used to design well-structured instruction for learners. The ADDIE model and Merrill's five-star instructional design process are among the well-known ones. The main problem with these models is that they put so much structure in the learning activity that the student will surely be able to carry it out but then this would be no different from the spoon-feeding culture that has prevailed for so long in different educational systems. The only difference is that now spoon-feeding takes place in a virtual environment. It is this lack of structure in the learning activity steps that creates the fuzzy element to foster original thinking as well as unique and different solutions from the learners. The idea is to have semi-structured learning activities or scenarios to prevent learners to propose stereotyped work that look similar to each other. Learners should have the freedom to propose their own solutions but in a negotiated way with the teacher. This is the opportunity to generate new knowledge that can be shared among peers.

The need of a participatory action-research approach

Wadsworth (1998) focuses on the three main words *participation*, *action*, and *research* to define participatory action research. He argues that the concept can be described as a kind of social research per se (albeit social research which is more *conscious* of its underlying assumptions, and collectivist nature, its action consequences and its driving values). Furthermore this methodology faces numerous barriers to its practice, which mean that, even when we might be doing 'it', we often have doubts and that it involves more or less reflexive, skeptical and imaginative inquiry.

The process of designing e-learning activities is a collaborative activity that involves more than one actor and each actor holds a role that is crucial to working towards a high quality product. While it is a continuous iterative process as seen in the three released versions of the module, the moving to new and improved action often involves a creative 'moment' of transformation (Wadsworth, 1998).

This is ideally the type of research approach that is currently needed in most educational research activities that focuses on reflective practices to improve current ones. The process is therefore continuously improving and is expansive through each activity cycle. The metaphor that best describes the expansive nature of the process through iterative cycles is Engestrom's (2001) theory of learning by expansion from an activity theoretical approach.

Conclusion

This paper discusses the conception, delivery and issues encountered with a general education module that has been offered online in an innovative pedagogical context. The paper highlights the instructional design approach used in the process and also reports observations with students for 3 consecutive semesters. A number of issues such as the need for a change in mindset, new ways of monitoring quality and different instructional design methods to be addressed for wide-scale university implementation of this approach have also been discussed.

Appendix

I appreciated the fact that the module course, notes, practicals ... are all online, which I consider a must towards a cyber island. It brings something new, a new experience (not having to enter a classroom)

This module has been a very good experience for me. I came across a lot of difficulties while performing my assignments as I registered quite late for the module. As a consequence I could not share my difficulties at the same time as other students in a specific forum. Nevertheless I managed to bridge the gap of lateness in my work in the eve of the exams to perform my website.

I found this way of learning great and the module was really interesting. What I really liked was that there was no formal lectures, no need to attend classes, no restrictions of time and place, no tests since it is marked by continuous assessment and it encourages sharing. However sometimes if we had questions or doubts we had to wait for replies, so we could not proceed with the work.

I think the module can be improved by a class in the beginning to explain about the activities, the forum and what is really expected from the students. I found the module contents and the instructions clear enough to understand. Even if we had any doubts we could always ask questions on the forum.

Well, the mode of learning was new for me at the beginning but after a lot of difficulty i was able 2 cope with it. It was less time-consuming so one can work at his own pace. The course is very interesting!!! i liked the way we are assessed for this module. More emphasis is made on practical rather than final exams; consequently it encourages us to keep learning throughout the semester. i learned many new things which will be useful later. For instance, final project n if ever am in the teaching field, I can design a course 4 my students & so on. I think it would have been better if we had an intro class at the beginning coz some of us were lost. And the responses of our queries were a bit late.

The learning experience in this module is really very FRUITFUL in the sense that beyond getting marks, I've been able to add much to my skills through practical activities on Mot and the pedagogical website. I have developed my presentation skills and if ever I get the chance to teach in a class, I'll be able to use the simplest way of presenting the subject and its particular components. I have liked the module, as it is very apart from the theoretical bulky ones. The practical activities have added to my skills for a lifetime and can help me in tackling any problem and planning. I disliked nothing but was only confused with interaction on the forum in the beginning.

The on-line module and the interaction with tutors are very new. At first the way to communicate with the tutors on the forum was quite confusing for me. Therefore, in order to ensure that students are on the right track, on the 5th to 6th week of the semester, the tutor can arrange a 1-2 hour class, where everyone will meet and can see to any queries regarding the module. The tutor will be able to help and guide anyone if they are stuck and cannot even communicate in the forums. The tutor also will avoid the regular and random meeting with students. The meeting can be the weeks in the middle of the semester as earlier there are students who would not have registered for the module.

The learning acquired through this module is highly above what I was expecting at the beginning. To be subject to design a website for e-learning was beyond my competencies some months ago!!! Thing I thought was extremely tough turned out to be fun & challenging. 😊. However, I must admit that it is a bit tough to participate and share views online. 😊 Especially for those who are not used to this type of online communication where everyone can view your messages.

Throughout this module, the only important part was to be consistent and be updated of the forum activity which helps us enormously in achieving our main goals, learning, understanding and applying the theories. Though we had a bit late replies, we managed to keep in touch. The only difficulty was that the PowerPoint on Dreamweaver was for Dreamweaver 4 and we were working on Dreamweaver MX.

In order to improve this module, students may have the opportunity to post images, for e.g. make screenshots of their problems in practice and post them in the forum, others will simply better understand what is needed from them and will post replies more quickly.

The learning environment is very nice. This recent style of teaching of courses prevents this course from being perceived as a burden by students. Thus the student can create his/her own timetable, due to the flexibility on the time management for this module. The forum can be accessed at any time. The module has been very enriching as it has helped me to work collaboratively with those whom I got to know on the Forum itself.

What I gain from this module is the capability of dealing with a virtual space. With the progress that ICT is being subjected to, forums are sure to develop into an important tool in the years ahead. Where web design is concern, I'll be able to slowly manage myself to create other basic websites in the future.

The module is on the whole a very good instrument. The activities have been very clearly explained and it is very user-friendly. Maybe it could be improved by enabling options like the private messages for students sharing a same user group.

Indeed before this module, I thought that through only learning I would be a good teacher. However, now I know the difference between learning and teaching. Organization is a must to become a teacher. Other significant information I learned through this course is that the communication process should be of a normal flow and interesting to all those concerned.

What impressed me the most is the way the module is designed. My wish is that my faculty is able to realize how such an educational mode can be helpful. Generally we are too much focus on the theoretical concept. Laboratories... Library...etc 🙄

During my first interactions with the module Educational Technologies and Computer-Based Learning Environments, I was not really conversant with the world of Computers. When it comes to the Internet, I only log on for exchanging mails or for research work and with this module, I have been gradually adopted a different perception of Computers with the friendly environment of virtual forums. My knowledge previously concentrated on the Microsoft Word only but with this module, I've been able to understand the Microsoft Power Point and Dreamweaver, thus enhancing my basic knowledge a bit further.

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