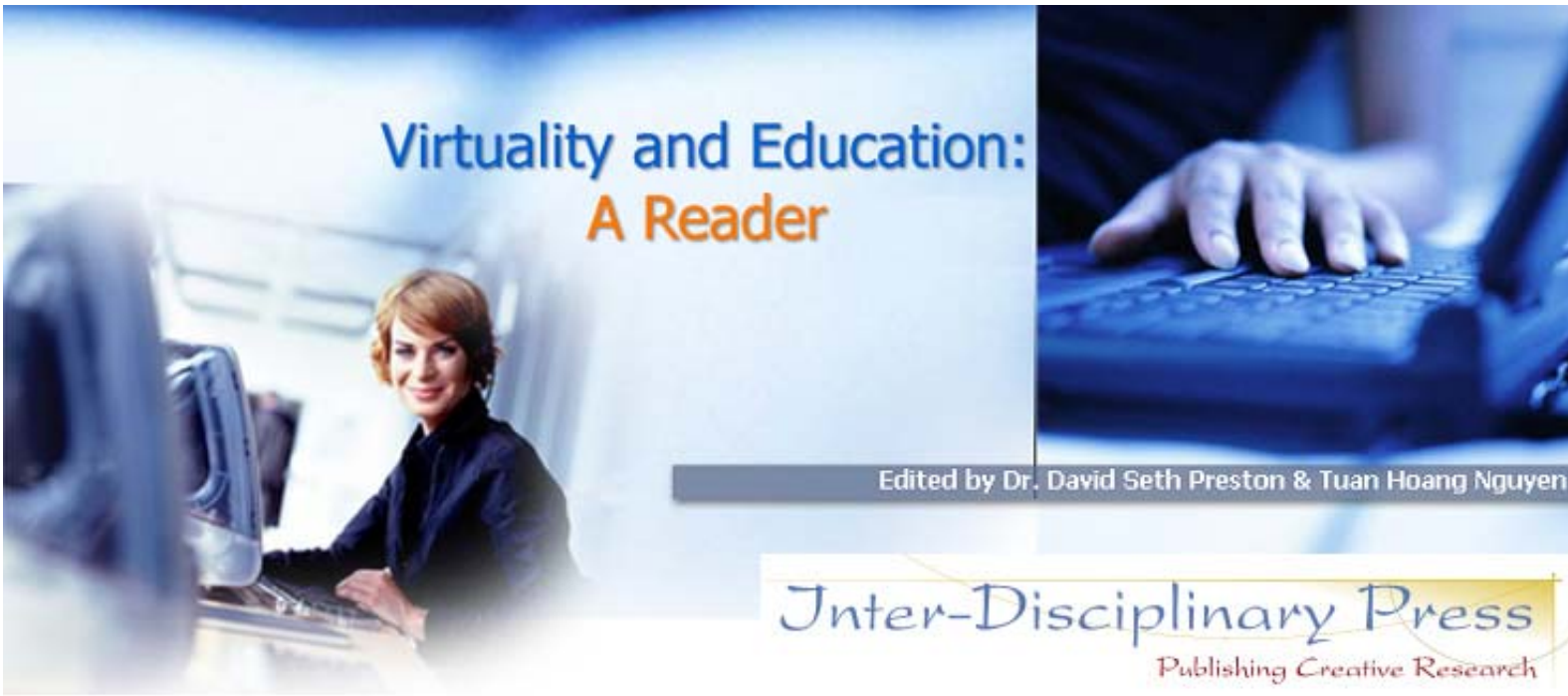
Virtuality and Education:
A Reader
Edited by Dr. David Seth Preston & Tuan Hoang Nguyen
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Table of Content

PREFACE

This e-book is a result of a two day conference held at Mansfield College, Oxford in September 2003. As the editors of this selection of papers from the conference we would like to thank all the delegates who made for both an especially stimulating and hugely enjoyable conference in a wide range of issues surrounding the general theme of Virtuality of Education. In addition, we would like to thank the sponsor of the conference, Inter-disciplinary.net and our most accommodating hosts at Mansfield College.

Editors
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23rd October 2004

Developing and implementing an e-learning strategy in a School of Nursing and Midwifery in the Republic of Ireland.

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Abstract

This paper is set against the background to the full integration of nurse education into the higher education sector in the Republic of Ireland. The commencement of the new undergraduate degree in nursing at the School of Nursing and Midwifery, University College Dublin afforded the School the opportunity to develop a curriculum to promote the integration of the theory of nursing with the clinical realities of its practice.

The establishment of the new degree in nursing coincided with the development of a new information technology strategy within the School. Part of this strategy involves attempts to develop e learning in order to promote a greater variety of learning experiences for students at both undergraduate and postgraduate level. One of the challenges for the strategy was to develop ways in which e learning could promote theory-practice integration in a meaningful way for students. Traditionally Nursing students' experience of learning has been lecture, workshops & tutorials, therefore this new departure of incorporating electronic methods is exciting for both lecturers & students alike. This paper presents an exposé of the variety of e learning approaches that the School has employed, including, to implement this strategy. These comprise a number of electronic vehicles, including an in-house intranet package 'UCD Connect' to communicate with students, Blackboard a vehicle for the downloading of teaching materials and assessing students, and e learning packs for supporting student learning while on clinical placements. The paper discusses the experiences of the School in utilizing and developing the various elements of the e learning strategy, and reports on the development and implementation of one element of the strategy, the e learning packs, which have been developed by a strategic group within the School.

1.Introduction and Background

In September 2002, all pre-registration nursing education in the Republic of Ireland became fully integrated into the higher education sector, and a new four-year nursing degree programme commenced. The introduction of the new degree programme was an outcome of the report of the Commission on Nursing, entitled *A Blueprint for the Future*, [1] which recommended that the future framework for pre-registration nursing education in Ireland be based on a four-year degree in nursing.

The professional regulatory authority for nursing in the Republic of Ireland is An Bord Altranais (the Nursing Board), and students taking the new four-year degree programme are required to meet a number of standards set down by the Board in order to register as a nurse. Principal among these is the requirement that, at the point of exit of the programme, students are required to have demonstrated the attainment of competence in key domains of competence. These domains represent the integration of knowing and doing, encompass affective components, and are related specifically to professional/ethical practice, holistic approaches to care and the integration of knowledge, interpersonal relationships, the organisation and management of care, and the learners' personal and professional development .[2] The educational programme stresses the role of the practicum in student learning, with learning in the practicum being specifically focussed on the attainment of competence in the various domains of competence. The educational programme must therefore provide students with learning experiences that assist them in integrating theory and practice within the competence framework.

With the entry of nursing into the academy and with the demise of the hospital based school of nursing, academic staff in the university are expected to ensure that students are provided with the support that was traditionally provided by the hospital nurse tutor, acting in the role of clinical teacher. In the Republic of Ireland, this support is currently provided by college academic staff making site visits, by registered nurses acting in the role of preceptor, by clinical nurse managers, and by *Clinical Placement Coordinators* (CPCs). The CPC provides support to the student on a one-to-one basis, and is an essential link between the various personnel involved directly or indirectly in student

learning in the practicum. Within the nurse training system in the Republic of Ireland, the CPC provides a substantial and a positive contribution to the student learning process. [3]

In their efforts to support students in the practicum, clinical staff frequently experience constraints, due to factors that include clinical commitments related to greater patient acuity, and departmental administration responsibilities. In addition, because of the academic, administrative and teaching demands placed on the college lecturer, lectures in nursing also experience constraints in providing support for the student.[4] For these reasons, student nurses can frequently find themselves unsupported whilst on clinical placement, and this lack of support can adversely impacts on their ability to integration of theory with practice, and ultimately on their ability to attain competence.

2.Theory-practice Integration

The integration of theory and practice remains an abiding concern in nursing education, and a recurring theme in the discourse concerning the matter is the existence of a theory-practice gap.[5] The nursing literature provides numerous examples of attempts to overcome this so-called gap in theory and practice. [6, 7, 8] The literature provides evidence of the employment of a range of pedagogical strategies, including IT strategies, aimed at bridging the theory-practice gap. Reported strategies include the use of web-based learning, combined with enhanced links between the lecturer and the clinical area, [7] the use of a clinical database to enhance problem-based learning,[9] the use of web-based discussion groups in bioethics,[10] and the delivery of a web-based baccalaureate module. [11] Positive results in the use of such initiatives have been reported, including increased student participation and interaction, [10] increased accessibility [11] and a perception on the part of students of a narrowing of the gap between theory and practice. [9] The use of computer-based strategies may also lessen the high costs associated with the provision of support for clinical learning in nursing education (Cheek et *al*. 1998).

Computer based educational initiatives are not without some disadvantages, including the dangers of students becoming over reliant on computers and misusing learning packages when not properly supervised,[12] and interference with student learning through unfamiliarity with computers or poor computer skills. [10] Accessibility of computers and the costs involved in the initial stages of setting up computer based learning resources are also potential disadvantages. [11& 12]

3.Developing E Learning

New information technologies have greatly increased the quantity of information available to people, and have altered the ways in which people communicate with one another. These technologies have transformed the home and the workplace, including the office, the shop floor, and most especially the health care environment, and in higher education, the wide variety of applications of information technology has transformed the learning environment for students. For students of the healthcare professions, therefore, the environments in which they study, train, and work will be replete with information technology applications. Furthermore, they will be expected to be master and incorporate information technology into their professional role-related activities, such as patient monitoring, patient education, and accessing and inputting patient data. On this basis, there is a need to prepare students of the healthcare professions with the capabilities to use the technologies.

Increasingly at University College Dublin, information technology is being utilised as a resource for student learning, and through a range of applications, e learning is assuming a more prominent place in the range of learning experiences being offered to students. The Internet and the College Intranet are the primary modes by which students gain access to these applications. At the School of Nursing and Midwifery, information technology is being used increasingly as a means not merely of complementing teaching, but as a part of the repertory of pedagogical tools available to lecturers in nursing and related subjects. The Internet is the most potent research and learning tool to be developed since William Caxton invented the printing press. [13] The obvious advantages of this medium are the speed and cost effectiveness of use, allowing communication across the world in words and pictures saving the movement of people and resources. This use of computer technology permits a range of applications in nursing education, including the communication of digitised information to students through multimedia, the provision of interactive video recording of simulations in the skills laboratory and the conduct of student assessments, the posting course materials on the web.

In 2002, the School of Nursing and Midwifery at University College Dublin developed and articulated an explicit information technology strategy. The aim of the strategy is to provide students with rich and stimulating learning experiences, and to enable students to both to understand and to use the technology in their learning, and to use it in their working lives. This strategy was part of a wider College strategy of developing a 'virtual university', and it envisaged the whole scale integration of computers into students' curricular experiences, including their teaching-learning experiences, and their self-directed study and research. The strategy was aimed ensuring that each student would develop computer literacy and be able to transfer IT skills into the workplace. Since nursing education comprises elements of theoretical and clinical instruction, the strategy also envisaged the use of e learning as a pedagogical tool aimed at promoting theory-practice integration.

A.UCD Connect

The information technology infrastructure within University College Dublin includes 'UCD Connect' an off the shelf product which provides access to a range of college computer services form via the World Wide Web. The system has been in use on a trial basis during the 2002-03 academic year and will be available to all first year students and staff for the 20003-04 academic year. The system allows access to a range of college IT services while on or off campus utilizing one login, which further eliminates the need for multiple logins and passwords. Services are available on the system:

- E-mail.
- Access to the files on main server
- Online Classes.
- A calendar service.
- Group tools to facilitate collaboration and discussion.

These services enable staff and students to communicate through an e media, using e-mails, class announcements, access to Blackboard and chat/discussion facilities. UCD Connect is accessed through the UCD homepage via the W.W.W. Future developments include: off-campus access to published applications, off-campus access to the full range of library services and access to administrative systems e.g. Human Resources and Finance. Connect enables communication anytime, anywhere thus facilitating teaching, learning and research collaboration.

B.Blackboard

The reality of the virtual university is further delivered to both students and staff in the form of the off the shelf product 'Blackboard'. This product creates a virtual learning environment in which students and staff can interact remotely and engaged in various activities, which are underpinned pedagogically sound methodology. As a University, the College envisages the use of 'Blackboard' as being another component of the Digital Campus strategy. Various applications for students and staff exist within the 'Blackboard' environment such as content storage, communication, virtual classrooms, assessment and digital drop box for assessment. This product 'Blackboard' is a supplementary tool to traditional teaching and learning methods within the University.

4.The e-Learning Resource Pack (e-LRP): Development and Design

The *e-Learning Resource Pack* (*e LRP*) is part of the range of pedagogical tools aimed at complementing other teaching-learning activities and technologies within the School of Nursing and Midwifery, UCD. It is designed to assist students to maximise their learning experiences while on clinical placement, and to provide them with a schedule of structured learning to enable them to concurrently engage with theoretical and clinical aspects of their clinical placements. The e LRP is designed as a web-based, self-directed learning resource, and consists of a series of separate units of study directly related to the students' clinical placements, in specialist clinical sub-disciplines, such as care of older persons and paediatrics. An individual unit of study that is related to each clinical nursing sub-discipline, such as care of older persons and paediatric nursing, is provided for students while on placement. The content of each unit of study builds on theoretical instruction already provided to the students in preparation for the placement, and is aimed at contributing to the students' attainment of learning outcomes related to the attainment of nursing competence. The *e*

LRP is viewed as an essential part of the students' studies, and as an integral part of the teaching-learning materials available to the students.

The *e Learning Resource Pack* is constructed around a series of sequential study activities and a schedule of time within which each student is expected to complete each activity. Completing each unit of study requires the student to complete a minimum number of self-directed study hours, and the student is provided with a schedule of the target times for completion of each section and each sub-section of the unit. The duration of study activities ranges from short five to ten minute reflective exercises, to one-hour activities, such as those requiring students to read a piece of course material, such as a journal article, official report, fact sheet, or other relevant documentary materials. This prescribed time schedule provides students with a structure for completing the unit of study, and it ensures that students are able to pace their self-directed study.

The *e LRP* is designed for use as an e-learning resource, and all the reading materials to which students are directed may be accessed electronically by invoking the web browser on their computer. While studying a unit of study, students is required to retrieve reading materials, using the Internet and the college Intranet, and they are also required to download documents from linked web sites, such as Government of Ireland websites.

While each unit of study of the *e-LRP* differs in terms of its content, individual unit authors are instructed to prepare each unit of study according to a standardised format, so that the students experience the same structure and the same general look and 'feel' for all or any unit at the user-computer interface. As part of the more general School IT strategy, students are provided with numerous opportunities to develop their skills at accessing and retrieving journal articles, and other resource materials that are available electronically.

5.Discussion And Conclusions

At University College Dublin, information technology is increasingly being utilised as a resource for student learning, and through a wide range of applications, e learning has assumed a more prominent place in the range of learning experiences on offer to students. The Internet and College Intranet are the primary media through which students gain access to these applications. At the School of Nursing and Midwifery, information technology is being increasingly used as a way of complementing teaching, and as a repository for teaching materials. It is also a part of the repertory of pedagogical tools available to lecturers in nursing and related subjects. Information technology permits a range of applications in nursing education, including the communication of digitised information to students through multimedia, the provision of interactive video recording of simulations in the skills laboratory, the conduct of student assessments, the posting course materials on the web.

While there may be diverse views concerning the knowledge sources from which nursing should draw, when planning a nursing curriculum, [14] there is broader consensus among educators concerning the need for eclecticism when it comes to teaching-learning strategies. For students, learning should be enjoyable, stimulating and inspirational, [15] and with the advent of efficient and widely accessible information technology, there are many more ways available to facilitate enjoyable, stimulating and inspirational learning. The range of electronic media that have become part of the repertory of teaching-learning strategies in higher education include interactive on-line systems that permit web-based distance learning. Systems that are well-designed not only provide students with access to course materials, but can also present them with novel and stimulating learning experiences at the system-user interface. E learning becomes increasingly relevant as a pedagogical tool in nursing education where it is the norm for students to be dispersed across a wide range of multiple and often distant learning sites for the purpose of clinical instruction.

In the traditional hospital school of nursing, the range of pedagogical tools available to nurse educators have included the traditional lecture method, small group teaching, and practical instruction in the skill laboratory, using simulation technique, practical demonstrations and other techniques. Having entered higher education, nursing has been exposed to a range of new pedagogical tools, most particularly in the area of information technology. Nursing education has itself brought new pedagogical ideas and techniques to the academy. At University College Dublin, nursing has embraced information technology and is prominent in developing new, nursing-specific applications that suit the particular needs of students and their teachers.

Computer-based learning provides students with an opportunity to enhance their computer skills, and importantly in nursing education, it affords them an opportunity to enhance their learning. The use of e learning resource packs is one example of an innovative alternative way of delivering theoretical content and supporting students in making theory-practice connections while on clinical placements.

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Emergent skills in higher education: The quest for emotion and virtual university

Luis Borges Gouveia

Abstract

New models and strategies have been on trial for the advantage of emerging information and communication technologies over the last decades. Among these, a particular group of technologies impacts the way time and space constraints are now consider. Additionally, the information and knowledge society requires new skills to both the professional and the learner. In particular, considering a higher education context, the need to deal with change, innovation and evolving models of competition and collaboration brings new challenges.

Although higher education keeps a traditional background of sharing ideas, experimentation and reflection about impact and future applications of available knowledge, it lacks the ability to embed within its own practices both its work and ideas as also efforts from its community. Presential teaching, organisational structures, administrative processes, curricula organisation and knowledge sharing strategies are now put on pressure by an increasing number of high education newcomers who fail to adhere to the current status and learn the skills that the so called information and knowledge society may require.

A huge challenge is on place, based on a transition from processes to information based activities, from an individual approach to a collaborative one, from a knowledge-oriented learning to a skill-oriented learning. It seems that the network both for individuals, organisations and also for organising the learning in higher education is a central concept: connecting people and sharing knowledge not efforts

The use of virtuality, considered here as the desmaterialisation of learning settings and experiences, provides the opportunity to cope with time and space constraints and to innovate both on practices as on what individuals need to know-how. This paper discusses the skills that may emerge from adopting a virtual approach to higher education and its impact to know-how, turning it in a complex (from our current viewpoint) know-where, know-who, know-what, know-when and know-why relationship network.

1.Introduction

Some years ago, I perceived university as the house of knowledge. It seems that the best ideas and the more in deep theories must have their beginning inside their walls. It is at the university that people discuss and shape both the science and technology that could change society. Thus provides a very strategic position and turns university as a central partner even when political concerns are at stake.

People within the university, mainly its professors have the responsibility as gatekeepers of knowledge and provide the last word on available truth. They have the ability to compound available information, process it, and more importantly put it into perspective with more classic views. Finally they can provide insight to what other people could do with available knowledge.

The interesting point is that as a result of university success in both providing knowledge to society and train many people using it, the university role itself change a lot and university no longer is the unique, the best, or the definitive place where knowledge lives and is puts forward.

A number of evolving phenomena concerning with the way knowledge is generated processed and delivered needs to be addressed by the university. University seems to be challenged by other players as enterprises, media, and government and not for profit institutions concerning its role as knowledge builders and knowledge gatekeepers. Among those phenomena, a number of issues are of interest for our discussion.

2.Key issues to analyse the current status

Saying that education, learning and training is on move is neither a new concept nor a new situation. In fact, many authors from different generations report change both on the way education can be delivered and on technologies used for such delivery. Despite this evolving situation no much is actually changed concerning the higher education model, which remains virtually the same since the introduction of universities in early XV century.

Current times bring a number of changes that are now in a mature state and present a radical change to which university needs to address in order to accomplish its role of higher education within society:

- Increase use of information and communication technologies that provides a huge movement towards the digital. This means that multimedia, the use of computers and communications and powerful applications such as World Wide Web and email are now widely use and available.

- Due to the media and communications effect information are much more visible now. This means that everyone if wanted can know more and faster than ever, turning information a problem not a solution: people now need to cope with information overload.
- Time and space constrains are now different and people can have a double presence: the physical one and a virtual who provide new forms of contact and a variety of alternative styles and self-identification. This means that each individual have now new forms to identify itself and to perceive other, both physical and virtual.
- The number of educated people is getting bigger. This means that an increase number of people are now able to advance knowledge and provide critical insight concern not only their activity but used knowledge.
- The nature of knowledge itself is more complex. It's much more integrated, with a wider range of disciplinarily and each day more difficult to a single individual to cope with. Also, its pace and growth is enormous requiring great effort, money and greater and betters teams to deal with it. This means that collaboration becomes a big issue to support networking.

Together, these issues introduce a completely different way to deal with information and the knowledge required for it. An all new set of skills are now needed and this may be a real problem for universities concerning the way they organise their main activity of furthering knowledge (research) and higher education (training).

3.Individual skills and information and knowledge society

Some of the issues described earlier as ongoing changes are due to the information and knowledge society. This concept is used to group a number of changes caused by the composed effect of the growing use of information and communication technologies and information, in particular, in a digital format.

A number of skills can be considered to better equip each individual to cope with emergent opportunities in an information and knowledge society. They must assure a minimum competence level and fulfil the following requirements:

- *ability to perform*: know how to do and to act in new situations and contexts;
- *work capacity*: demonstrate ability to work under pressure, both individually and in groups;
- *flexibility*: each individual must be able to work under different contexts and to take decisions and cope with change;
- *self learner*: be able to learn alone by own practice as well as by own needs;
- *reporting*: be able to analyse a situation and to outline it. This will assure the individual role as a communicator;
- *creative*: considering the need to be a leader, to propose new perspectives, to take winning decisions and be proactive.

To be part of the information and knowledge society four levels of literacy must be acquire. These levels describe general skill that any individual must have in order to be able to take advantage of the opportunities provided. Some of these are quite basic and the actual educational system also presents some sort of solution but others must require new approaches to deal with.

Those four levels are:

- *basic literacy*: know to read and write and to use the language. Nowadays, along with the native language it is expected that at least, another language can be used with a regular level of proficiency.
- *technological literacy*: know to use and take advantage of information and communication technologies. In particular, the computer, its use and the knowledge of the most common applications of word processing, spreadsheets, number crunching, presentation, and databases are needed. Additionally, a basic skill it to take advantage of computers to solve its own problems and needs.
- *information literacy*: know how to use information, how to deal with information overload, and develop a critical use of information. This level in particular is very important as it provides individuals with the tools to minimise their efforts in day to day lives: who can use information has the ability to perform smarter, faster and cheaper.
- *communication literacy*: both consider group interaction or on an interpersonal basis. It provides the necessary skills related to human communication and leadership. This may include self-motivation and group motivation as well as reporting and negotiating skills.

The last two levels: information literacy and communication literacy are major concerns in the information and communication society and provide an opportunity to higher education renewal.

4.Emergent skills in higher education

Maurice Duverger defends the possibility of the 21st century become known as the communities' century, as the 5th century has been known as the cities century, and the 14th century as the states century (Duverger, 1987). Following the same author, the trend is towards the growth of the communities both on number and quality, and to the union of the states, without losing their identities.

The interaction between states established among them a mutual enrichment, based on information exchange of their history, their culture and language, and by sharing different values. The sharing of knowledge fosters societies' development; not only economic but also social, cultural and even political.

As a result higher education must provide the necessary skills to enhance knowledge sharing and foster the skills that provide a true global citizenship. Information literacy and communication literacy are major concerns for societies and presents an important issue to the development and planning of strategies for an information and knowledge society.

- information literacy can be defined as the ability to recognise when information is needed and to know where we can find it, and how to assess and use information in an effective way (Burnhein, 1992);
- important skills concerning information are ability to access, use and understanding various information sources. Who possess information skills wants to know more, is capable of making the right questions and perform information analysis, identify search strategies and to access obtaining results. (Lenox and Walker, 1993);
- the individual must be able to understand and analyse what is being perceived, i.e. which information to sort, identify, select and analyse (Lenox and Walker, 1992);
- a list of skills associated with the information and knowledge society is proposed by (Doyle, 1992):
  - recognise that complete information is needed to better decision making;
  - recognise the need of information;
  - be able to draw questions based on its information needs;
  - identify potential information sources;
  - develop successful information search strategies;
  - access information sources based on computer and other technologies;
  - be able to assess information and information value;
  - be able to organise information for its practical application;
  - be able to integrate new information in a previous existent body of knowledge;
  - be able to use information to critical thinking and to problem solving;

As proposed by (Castells, 2002) the network is an essential organisation model to connect people and to enhance individual power over its ability to deal with information, decision and expertise in a particular area of knowledge. As opposed to the traditional isolation of who have the know-how, we are going to assist a smooth but inevitable transformation towards the need to network and thus learn how to learn and who, what, when and why learn something in special may be of importance. This requires new knowledge and skills to be developed named here as know-where, know-what, know-when and know-why.

5.A virtual university approach: the Netlab concept

Every student can connect to the network infrastructure using its own laptop through the campus facilities. Students are able to use networked facilities, and set up projects on their area. The massive presence of laptop computers now makes part of the IT infrastructure of the university. This affects in a different way the needs and the use of a Campus Wide Information System – CWIS (Gouveia, 1998b).

It is possible to consider the technological infrastructure just as the first layer that can enable the production, communication, change and share of content between students, students and teachers and even between teachers by linking computer resources and their respective contents.

To make the network use a daily activity for everyone, content (quantity and quality) is a very important factor. First to enter discussion on the NetLab concept itself, it is important to discuss the content layer. It is a major advantage for most of the higher education institutions because they constitute the great producers of content material and have a proper workforce to maintain these materials update and usable. To get the students involvement and even other teachers' involvement, it is necessary to gather content and publish it online (Gouveia, 1998b).

At the third layer, stands the NetLab. The NetLab intends to be neither a virtual campus network nor a distance learning environment. It wants to be a local interaction engine that provides a structured approach to services and content generated both by students and professors. But what is really different in NetLab?

First, it is people-centered and not technology oriented; second, the environment where NetLab exists has a strong reinforcement in mobility (with laptops and DHCP network entry points); third, it provides a greater involvement between students and university by sharing of technology investments. At last, because the network allows the use of tools for information manipulation out from classrooms to all spaces of the university (Gouveia, 1998b).

The NetLab can be seen as a first step to prepare and prototyping on-line material and off-campus on-line courses and train teachers to integrate Information and Communication Technologies (ICT) technologies in the teaching-learning process.

When integrating these goals with the various resources, information technology and adequate organisation, the institution can shift to offer on-line degrees off-campus and offering Open and Distance Learning (ODL) courses as a normal part of its service catalogue wich define the last layer: the virtual university. This situation has been defined as corresponding to the ones in reporting as virtual university (Rossman, 1993), and (Mason, 1998).

Figure 1 (Gouveia, 1998) helps visualising the role of NetLab as an educational lab that introduces innovative practices and that takes advantage of the Fernando Pessoa University environment.

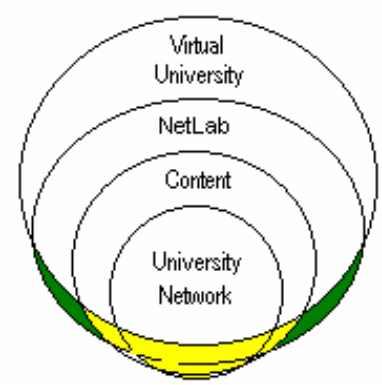

Figure 1: The NetLab concept

6. Final remarks

It seems that a lot remains to be done. This defines by itself the huge challenge that university and higher education must do to provide answers: its own change towards a more oriented skill approach where people become central.

One of the main challenges is to abandon the knowledge centric approach. University is not anymore the restricted place where knowledge lies and it difficulty can be seen as the knowledge store for society. Although university has its place even with a higher relevance considering knowledge not for content but for its management, not for knowledge transmission but for knowledge organisation, and not for just training people but for let them acquire the skills to deal with knowledge and cope with information overload.

We must take into account that the "game" is not anymore with data and information, but with information and knowledge and thus requires a new kind of university. This means that further important than provide a know-how approach (data and information) is to provide critical skills on where, who, what, when and why to use information and knowledge.

As a result, a number of questions must be placed. One such example is the following: are knowledge-oriented degrees for a given area (sociology, computer science) still is the best approach?

As a last point, we must remember that who feels information needs are people and thus, the motivation for learning has somewhat related with emotion, one of the keywords to be regarded when we want to bind technology, information and people. This is also true for higher education.

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Computer aided learning: panacea or Pandora's box?

Jenny Prior

The midwifery and nursing professions have been reviewing teaching and learning strategies to be incorporated into curricula since the late nineties. This comes, following particular drives from the National Committee of Inquiry into Higher Education, the former and current nursing midwifery and health visitors' professional bodies and government.[1, 2,3,4] Information technology (IT) including computer aided learning (CAL) is one of those strategies highlighted for further use in higher education.

There has also been ongoing debate regarding the delivery of biological sciences in the curricula. Several authors have noted the current imbalance in curricula between social, behavioral and biological sciences.[5, 6] Traditionally biological sciences have been taught to student midwives and nurses in lecture format, and predominantly in the past by the medical profession. In the last decade nursing and midwifery have rejected more and more the older style medical, paternalistic attitude to health care and instead, have attempted to adopt a more holistic approach to care. However, this in itself has resulted in heavy weighting of curricula towards social and behavioral sciences.[7] One could argue that such inappropriate weighting and curricula time constraints have been to the detriment of biological science instruction.

Due to the exclusion of medical input into nursing and midwifery curricula, biological instruction formerly undertaken by the medical profession has now been undertaken by nurse/midwifery educators. These teachers are not always sufficiently qualified or adept at teaching biological science subjects. By rejecting the medical input and its disassociation with a holistic epistemology, nursing and midwifery educators appear to "have thrown the baby out with the bath water" and created a new incomplete holistic attitude with an unequal contribution of biological sciences.

Despite this inequality, the amount of biological science knowledge students must gain remains immense. Lowry and Johnson's findings of students complaining of the vast amount of material delivered in lectures corroborate this.[8] One must also remember that due to widening of the entry gates for nurse and midwifery education, and the fact that mathematics can be counted as a "science" for entry, some students have little or no previous biology knowledge.

Flexibility in delivering education should include the use of information technology (IT). The National Committee chaired by Dearing in 1997 commented on the "under exploitation" of available technology, mainly due to staff resistance and limited computer aided learning (CAL) resources in the midwifery and nursing educational institutions. Lowry and Johnson (1999) also reported this. Since then there has been some improvement in attitudes towards such use of technology. Currently there is a generation of lecturers and academics who are not IT literate, some students having far more knowledge about its uses and applicability. In addition to this students are now used to seeing excellent quality graphics by such companies as Disney, Dreamworks, Nintendo and Play station. Compared to the animation produced by cottage industry CAL package designers, one could argue that inferior quality graphics may be disappointing for students and not hold their interest. Therefore, both programmers and educators have an important joint contribution to make to CAL development and design. Initiatives in the recruitment of lecturers are now looking at IT capabilities being a necessary attribute. Like research, some lecturers can find little time in their teaching schedules for the development of learning tools such as computer aided learning. Creativity requires spontaneity and time restraints on teachers certainly curtail this.

Treistman and Fullerton noted that the need for innovation in education of nurses and midwives is reaching a critical stage in America.[9] It seems the same is true for the United Kingdom. Dynamic

changes in midwifery, nursing and medical education will have a dramatic impact on course providers and academic staff. Opportunities to provide a more appropriate mix of educational tools, including information technology (IT) and e-learning are increasing, particularly also alongside inter-professional learning.

The use of CAL packages does enhance the development of key skills such as improving students' own learning and in the use of IT itself. Universities are now required to include in academic courses stepping on and off points for students incorporating transportable key skills into modules. The debate continues as to whether IT should be incorporated into curriculum as a subject specific topic itself, or be introduced and developed as an integral part of other mediums such as computer aided learning packages in a diverse range of modules throughout a programme of education. Further research is required in this area. The emerging agenda of developing generic key skills such as IT in students means that universities must address these issues.
Sinclair and Gardener also argue practitioners should be prepared for all aspects of their eventual exposure to IT throughout the health service.[10] The NHS Executive has also contributed to the debate stating that midwives and nurses should be competent in the use of IT to improve care provision and also to enhance professional development. The use of IT for learning, communication and improved patient care is also explicit in the NHS Plan (DH2000) and more recently, the NHS Information Authority Strategic Plan 2002-2005.[11] Therefore CAL would seem to address a number of issues.

After extensive review of the literature, it was decided that a CAL package would be produced to deliver some of the biological science components of the pre registration midwifery programme of education. The package itself and subsequent long and short-term learning would also be evaluated. The package was topic specific, covering shock, oedema and the general adaptation syndrome. These sessions had not evaluated well by students and staff alike when previously delivered in the traditional lecture format. The package was to be used not only by student midwives as part of their programme of education but also to be accessible to student nurses and medical students, introducing also an inter-professional element to CALs use.[12]

Authoring systems for the production of CAL programmes have vastly improved over the last decade. Frameworks were rigid and initially some systems were unable to import graphics. Paddison noted this problem when she looked at the then current systems which included Oasis, Plato, Compsoft, Domino, Microtext (BBC), Super Pilot, Combat Wise and Smart.[13] Since then there has been a convergence of and controlled integration of technologies that has continued to develop. CAL packages are now available that not only allow importation of graphics but allow interaction requiring higher levels of cognitive function. Such technologies and new authoring systems have enabled packages to become less linear, however it is the design and creativity of the package, and how the tool is manipulated which will ultimately decide this factor and not the authoring system itself.

Previously CAL software has said to lack imagination particularly when undertaken by 'out of house' commercial software producers. Any failings in such bought in packages, for example with regard to navigation errors, frames sticking can take several months before problems are resolved. Using these packages can mean delays in upgrading or refreshing material once they have been purchased.[14] Licensing regulations also may limit the number of copies a university can legally use, this causes additional expense when applying for additional licenses should student numbers or access to the packages increase.

In house production of CAL packages can resolve the above issues and also means that the teacher can update material at any time; and it is a relatively quick process. This ensures that every time students

access the package they are exposed to the most current information. However, this only has advantage over the problem of outdated textbooks if the system is regularly reviewed and updated. Never the less in house production of CAL packages is also problematic. The time required to produce such a package is immense, some authors estimating between 232 and 446 hours as the typical number of developmental hours required.[15] There are those that would argue, with regard to full scale multi-media authoring, institutions should decide whether academics on non-technical disciplines have the competency and diversity of appropriate skills required for CAL provision and production. Hamilton *et al* (1999) strongly profess their opinion that CAL production is inappropriate and inefficient in the hands of teachers and trained clinicians. Experience during this project demonstrated that the teacher did not have the IT skills or time to acquire computer programming knowledge to undertake the task herself. Therefore a decision was made to use a team approach using the teacher as subject specialist, a computer programmer and graphic artist.

In facilitating changes, and incorporating CAL into programmes of education, educators need also to be aware of the individuality of students' approaches to learning. Authors such as Nisbet and Shucksmith differentiated between study skills and study strategies. Study strategies require a higher level of application, with students planning, monitoring and self-testing.[16] Metacognition is the awareness of an individual regarding their own thinking and ability to adopt appropriate strategies for transferring what has been learned to new situations.[17] For some students IT will be familiar territory for others a frightening and difficult experience. Students will need a certain amount of basic computer literacy to undertake CAL and time has to be built into curricula to allow for this. Poor IT skills may cause frustration where students are delayed in completing a package not by lack of subject knowledge but by lack of IT skills. Such protracted time at the PC may reduce student morale in this area. Therefore, educators are challenged with not only incorporating more IT into curricula but with developing strategies where students are able to acquire computer skills, recognize their own learning styles and abilities and subsequently transfer such knowledge from the PC into the workplace. This is problematic when students come from a diversity of educational backgrounds and the majority of theoretical learning takes place in university classrooms, often away from the clinical environment. There is some scope here for Trusts and universities to improve and share IT facilities, in order to allow students access to university education facilities whilst remaining on site in the clinical environment, as expounded by the NHS Plan. To date this has been difficult to achieve with co-operation between Trusts and universities sporadic up and down the country.

The literature search revealed that CAL allows the students to work at their own pace where as lecture format dictates the speed of learning. In a small study undertaken by Prior (2000) where students attended either an interactive taught session or undertook CAL package for the same subjects, students in the CAL group also reflected learning at their own pace as a positive aspect. All of the students in the CAL group enjoyed the flexibility in work pace that the package offered. Although the benefits of flexibility of CAL are evident it is also important to consider the negative aspects of this. Teachers and lecturers often negotiate breaks with students, ensuring Maslow's hierarchies of needs are met.[18] If students undertaking CAL packages do not take breaks of their own volition there may be some morbidity associated with this. This was evident from the students in Prior's (2000) study, with symptoms of headaches, tiredness and eye problems following sustained, prolonged use of the PC. With regard to health and safety there are no set time limits for the amount of time, which should be spent directly in front of a PC screen. However, it is recommended that short frequent breaks be taken as opposed to longer and less frequent breaks. Visual display units can also aggravate epilepsy, and students who wear contact lenses may have problems of dryness in the eyes if the PC is used for long periods of time.[19] Students should be made aware of such recommendations and be advised to take appropriate breaks. Course planners should ensure that the use of CAL is appropriately spaced. For the

biological science module the CAL sessions encompass 20% of the module time. However, throughout the programme some modules are delivered concurrently. The timing of CAL sessions in other modules should be evenly distributed to prevent a heavy overload of computer work at one time. Universities should consider the health and safety issues particularly if delivering the bulk of course material either on site or by distance learning, as there are very real considerations to be made for student welfare.

In Prior's study fifty percent of the students in the CAL group expressed a preference to have worked in groups as opposed to working alone at the PC. This could however, impinge on the flexible nature of the package that they liked so much. Perhaps the desire for interaction outweighs the desire for flexibility. One criticism leveled at CAL packages is the reduction of human interaction, which is a necessary requirement when working in the clinical environment. Many developers and designers have promoted their CAL packages by incorporating the term "*interactive"*. Heath also states that this term is misleading. She argues that, when applied to the fields of IT and applied linguistics individually, the actual term is one of semantics as each field applies the concept of interaction differently. However when IT and applied linguistics merge as they do in multimedia packages, confusion and deception can occur due to merging of terminology. Student input into a computer and resulting feedback has necessitated a label for this process and "interaction" has been used, and now appears in some dictionaries along side more humanistic and linguistic definitions.[20] Heath also cites Ann-Malamah-Thomas' expansion of the definition, where " *interaction "* is more than action followed by reaction, it means acting reciprocally upon one another.[21] This would include input from the teacher, students' responses to that and subsequent pragmatic responses to that, and so on. Varying influences alter and change the course of that interaction. This includes body language, the use of personal resources, and judgements made on past experiences and values. This symbiotic relationship cannot be achieved with a computer. Davies and Crowther note limitations in the use of IT, in that real life situations can never be replicated and students may become proficient at interacting with a computer, but less able to interact with people.[22] Eighty three per cent of the students in the CAL group in Prior's study had commented on wanting interaction with the teacher, and not necessarily finding a deficit with the package which they did find "interactive". During the study a teacher was intermittently present during the CAL session to support the students with any IT difficulties. Students stated the reasons for wanting a teacher present were to receive alternative or better explanations to the biology, and not for IT problems. In a study undertaken by Koch *et al* sixty percent of student nurses also cited this reason for wanting supervision during CAL sessions.[23] Facilitation therefore during CAL appears to be of importance for students, particularly with regard to subject matter rather than IT issues. This corroborates Heath's views (1995) about interaction being a two way process where genuine interaction is only possible between two people, and as she comments, a comforting thought for those who fear replacement by technology.

Since Prior's study, CAL sessions have been interactive in the humanistic sense of the word, students have worked in small groups, breaks away from the screen have been encouraged and the ensuing group discussions have helped in this respect. A biological science teacher has facilitated the session in regard to both subject matter and IT issues which may present. This has proved extremely beneficial to students, allowing interaction, discussion, and development regarding biological science issues and development of key IT skills in a safe environment. There is scope here for further research to incorporate the use of auditory stimuli and 'voice- overs' into CAL packages to test whether the use of the human voice prevents students feeling the lack of 'humanistic' interaction as reported. However, it will not address issues regarding rephrasing and explaining biological concepts.

CAL can be seen by some as a classroom without walls where sessions occur at any time. However, it was noted that none of the students in Prior's study returned to the actual package for revision. The researcher did not expect this. It was presumed that the students would return to the computer suite for revision purposes. However those students who revisited the subject area revised material from notes they had taken at the time of using the CAL package. This is a similar revision pattern to that of the control group This could explain why there was no difference in long and short-term learning between the CAL and control group in Prior's study.

Why students in the Cal group chose to revisit the subject area using their notes rather than returning to the CAL package could be due to a number of issues. Limited access to the university computer suite particularly when working around shift patterns and the actual hassle of having to get into the university site with associated parking problems to actually access the package is a significant factor. The university only allows access to the packages via the Intranet so students with child care issues found it difficult to revise in the evenings from a university site; it was easier to revise from notes taken at the time. This is being addressed and in future web-based packages will be produced or existing packages transferred to CD ROMs to allow students full access from home at any time if required.

CAL has been promoted for a variety of reasons such as teaching basic anatomy or replacing a lecture as in this case. It can also be used with problem based learning which the Academic Division of Midwifery is actively involved with. The Academic Division of Midwifery has embraced problem based learning (PBL) incorporating it into the first year of the curriculum of the 156-week programme of midwifery education. PBL requires interaction, negotiation and teamwork. As IT continues to develop, computer aided learning could be merged in the future with PBL so that programmes similar to Mind Tools could be utilized to fully exploit the potential held within these fields of learning.[24] Computer aided learning in this format can help learners manage their educational activities rather than being used solely to teach subject specific materials.

In conclusion, CAL development should be collaborative; involving educators, programmers and graphic artists, therefore inclusion of such professionals when developing curricula may also provide a valuable asset. Student centered learning requires teachers to undertake a facilitator's role, rather than being absent from the learning environment and that is also true of CAL. However CAL packages must demonstrate an integrity and effectiveness which is believable.

Although CAL is not "new" in academia it remains relatively new to midwifery and nursing curricula in the United Kingdom. It has been slow to develop but with advancing technology there is the potential of mixing computer and information technology such as CAL with interactive teaching sessions and PBL. Computer aided learning is not the panacea in education. It is however, a useful tool to be used either as a stand alone instrument or in conjunction with other teaching and learning strategies in the provision of diverse, flexible and dynamic programmes of education which must also consider clinical application.

Notes

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2. UKCC, 1999
3. Department of Health, making a difference 1999
4. Department of health, The NHS Plan 2000
5. Courtenay, 1991,405-6

6.Trnobranski, 1993, 493—499
7. Wynne et al, 1997, 470-474
8. Lowry & Johnson, 1999, 521-526
9.Treistman & Fullerton, 1996, No.5
10. Sinclair & Gardener, 1997, 372-376
11. NHS Information Authority, 2002
12. Prior, 2002, unpublished Masters dissertation, University of Nottingham
13. Paddison, 1988, 254-255
14. Gwinnett & Massey, 1987, 7116-7119
15. Hamilton et al, 1999, 298-305
16. Nisbet & Shucksmith, 1986
17. Tolley & Murphy, 2000
18. Maslow, 1970
19. Health and Safety Executive, 1992
20. Heath, 1995
21 Malamah Thomas cited in Heath 1995
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Reinventing Intensive Care Nurse Education - A Case Study

Justin Macklin and Audrey Blenkharn

1. Introduction.

This paper is a case study of the development and management of a specialist clinical course in intensive care nursing, delivered by distance learning. At the time, no other clinical nursing courses were offered in this mode of study. This presented a number of challenges which can be grouped into two main areas; (a) the difficulties in delivering a "hands on" clinical nursing course at a distance and (b) the technical challenge of providing online support actually into intensive care units.

Until 2001 all nurse education programmes in England leading to a professional award required the approval of the English National Board for Nursing and Midwifery (ENB). The purpose of this approval was to ensure programmes met accepted professional standards. Since 2001, this role has been fulfilled by the QAA (the Quality Assurance Agency for Higher Education).

2. Background

Traditionally nurse education was hospital-based with small groups of students acquiring knowledge and skills largely through supervised practice. Integration of nurse education into the higher education sector posed a significant challenge in maintaining this clinical focus. This was especially true for ENB approved post-qualifying programmes such as the intensive care nursing course, which were originally developed to facilitate the acquisition of nursing skills. In an attempt to narrow the theory practice gap many Nursing/Healthcare faculties established joint posts such as lecturer practitioner (or link lecturer etc.) thus ensuring the faculty had a clinical presence. This emphasis on establishing and maintaining the clinical credibility of nurse education programmes prevented many faculties pursuing the distance learning option for delivery of post-qualifying clinical courses. However, this somewhat narrow perspective limits the educational opportunities for a substantial number of nurses working within the intensive care environment, who through personal circumstance require a more flexible approach to learning than that offered by campus attendance modes of delivery. There is currently an acute problem in the recruitment and retention of nurses with intensive care nursing skills both in the NHS and private health sector, resulting in patients being denied access to life saving treatments [1,2] and there is clearly a need to provide more flexible educational programmes. Our intensive care nursing programme by supported distance learning was designed to address these issues.

3. Challenge - the difficulties in delivering a "hands on" clinical nursing course at a distance

The major challenge in developing a distance learning intensive care nursing programme is to maintain the focus on practice, ensuring participants acquire clinical competence. Competence comprises a combination of technical skills (ie the skills necessary for effective practice); methodological skills (eg communication, interpersonal and presentation skills) and conceptual skills (eg knowledge and understanding, critical thinking, problem solving, decision making, reflection and action planning). The Commission for Education in its report "Making a Difference to Nursing and Midwifery Education"[3] recommended that nurse education be focused on outcome-based competency principles developed collaboratively between higher education establishments and service providers. They felt this would ensure that nurses developed the higher order intellectual skills and abilities and the practice knowledge and skills essential to the art and science of nursing. A competency approach to education is comprehensive, encouraging the development of knowledge, understanding, practical and technical skills, attitudes and values. The emphasis is placed on output, on the achievement of learning outcomes through collaborative learning strategies and workplace application and the provision of evidence to validate competence. Learning that takes place in a practice setting is therefore considered as valid as learning in an academic institution[4].

Practice is the key place where this competence develops with skilled practitioners facilitating the development of professional knowledge and competence. Learning experiences and opportunities must therefore be created and structured in such a way as to assist the student achieve this competence. In the intensive care nursing programme by distance learning, it was decided that achievement of clinical competence would be facilitated through the design of learning activities situated in the "real world" of intensive care nursing and through clinical preceptorship. A preceptor

is defined as "an experienced nurse within a practice [setting] who acts as a role model and resource for a student"[5] advising and assessing the student throughout the duration of the programme. The preceptor is an appropriately qualified and experienced first level nurse, selected by the student's manager, who has undertaken preparation to develop the skills of facilitating student learning, supervising practice and assessing the student's level of competence.

The underpinning educational philosophy that drove the curriculum development was social constructivism. Social constructivist theory proposes that much of our world cannot be objectively defined but rather is constructed by the social practices, discourses and interactions in which we engage with others in our culture. In a constructivist approach to learning the emphasis is placed on what is happening to the learner rather than what the teacher is doing. The learner interacts with objects, events and people, and through this interaction gains an understanding of these objects, events and people. Learning does not simply involve the receiving, storage and retrieval of information. Nor is it just the transfer of knowledge from the external world into the learner's memory. Learning is an internal process. It is the result of mental construction and takes place by fitting new information together with what is already known and understood. Learners create interpretations of the world based on their previous experiences and their interactions with and knowing of the world.

A social constructivist approach to learning places the teacher in the role of a creator of learning experiences and opportunities that facilitate the natural development of a learner's mental abilities through various paths of discovery. Learning is seen as a social and collaborative activity that cannot be taught to anyone. The learner constructs his or her own understanding, the teacher acting as a facilitator in the construction of meaning.

The nurses who undertake the intensive care nursing programme by supported distance learning are registered practitioners who have worked within the intensive care environment for a minimum of six months. They therefore have knowledge, understanding and experiences upon which the programme builds. The learning activities were designed to encourage the student to utilise this previous learning, and assist him/her to invent his/her own solutions to problems and try out ideas and hypothesis. Learning experiences were created which encourage students to reflect on and in their practice. The learning activities utilise a variety of resource materials presented via a variety of different media.

In traditional distance learning programmes the student works through the learning materials independently. Social constructivism however requires that mechanisms be built into both the materials and the learning support to foster collaboration between distance learners, and between teachers and learners. The development team therefore decided that the course would adopt a combination of taught, distance and e-learning approaches. (The term blended learning was not in common use at this point. However universities, and in particular the UK Open University, were beginning to advocate combining several methods of delivery where possible.[6,7,8] More recently, this has been adopted as normal practice, with healthcare and universities promoting a "'blend' of face-to-face, distance and electronic learning.[9])

A. Taught component.

In campus based clinical nursing programmes, the student typically sees the tutor once a week, and time is easily found for informal, as well as formal tutorial support. For the distance learning version, it was decided that the clinical supervisor would act as preceptor and individual point of contact, offering support the students in the traditional face-to-face manner. The preceptors were (and still are) prepared for their role by completing a specially written preceptorship learning package and attending a specific workshop 'Supporting Learning at a Distance'.

B. Distance learning component.

The main part of the academic component of the course was designed as written materials which are sent to the student. These distance learning materials are 'activity' based, and refer to online materials and support groups as required. This design helped create the constructivist culture of the course [10,11].

This programme content is presented in a series of learning units, each unit comprising of a number of activities and a list of resources that enable the student to complete the activities and achieve the unit outcomes. The student's task is to weave her/his way through the resources, guided by the programme teams advice, developing and using the skills of critical analysis and reflective practice, thus constructing knowledge of intensive care nursing. At the same time students collect evidence to support achievement of twelve essential clinical competencies of intensive care nursing.

C. E-learning.

Some e-learning components were created as HTML pages for the emerging patients scenarios (released on a timed basis), links to relevant websites and online documents. Other components, including a notice-board for

announcements and discussion groups (some tightly linked to the activities in the written materials and others dedicated to tutorial and peer support) were created in an e-learning platform. Email and occasional use of synchronous chat were also included in the design, even though the development team were aware that synchronous chat is usually less well reviewed by students [12].

The inclusion of discussion groups and e-mail for discussions between tutors at the university and clinical preceptors was also part of the design.

There was considerable concern amongst the course development team about making e-learning a compulsory component of the course. Although these students are usually technically competent, there were some worries about them being able to effectively use the e-learning system (Fred Lockwood at the open university had identified that highly technical users can still have difficulties with online learning systems[13]) or being able to get access to an Internet enabled computer at all (traditionally nurses are regarded a relatively low paid workers, and as such are likely to be late adopters of internet access at home). In the event this concern was overcome when funding was secured to install dedicated Internet access PCs in the two pilot intensive care units, meaning that students would have access at work, if not at home (but see the evaluation, below). They could also receive technical support in the workplace.

4. Challenge - Technical Structure

The e-learning platform for the project had to be a developmental product called 'Virtual Campus' (VC), in which the university had a stake.

Virtual Campus was initially created by the University of Lincolnshire and Humberside and further developed with funding from the Extended Learning Environment Network (ELEN) consortium, consisting of De Montfort, Huddersfield, Middlesex, Plymouth, Loughborough, Thames Valley and Manchester universities[14]. These in turn were funded by The Teaching and Learning Technology Programme, which is ultimately funded by HEFCE and Department for Employment and Learning[15].

The course development team were aware of VC's developmental nature and decided to put course materials, such as the emerging patient scenarios into HTML pages hosted on the faculty's own web-server. These could be accessed by links in VC, but had the advantage of being easily accessible from elsewhere should there be a need to move to a different e-learning platform. This decision paid dividends in 2002, when the ELEN project terminated and the university migrated to the Blackboard e-learning platform [16].

The split of the location of the online components was:

Location of components	
Virtual Campus	**Faculty Server**
Introduction.	Online course materials
Course notice-board.	Emerging patient scenarios
Course discussion groups.	
Student discussion group.	
Preceptor discussion group.	
Synchronous chat	

Tutors and students were largely unaware that the information was coming from two sources. All content was viewed through frames in the VC HTML interface.

In 2002, following closure of the ELEN project, the university decided to implement the Blackboard e-learning platform. Virtual Campus facilities were duplicated as far as possible on Blackboard and the transition was easily made. However, because Blackboard is likely to remain as the e-learning platform for some time, the course tutors have decided the next stage of development is to integrate the course content currently on the faculty web-server into Blackboard. This will mean updating the content will become easier for the tutors, rather than having to deal with two separate systems.

5. Evaluation

The course was introduced in 2000 and three cohorts of students have now successfully completed the course. Each cohort has been evaluated internally, and two have been the subject of qualitative evaluative research studies. The general impression gained from these evaluations is that the programme adequately prepares nurses to work in the challenging environment of intensive care and that the design of the programme fosters enquiry and reflection. The virtual learning environment encourages collaboration between students. Both students and their managers consider this mode of delivery to increase flexibility in regards to study time. This has allowed one NHS Trust to increase the number of students it can support on the programme at any one time because study leave can be staggered. Students have also been able to accumulate study leave and take it at a time that best suits their individual needs.

Students have also commented positively on the variety of media and activities within the programme and feel this caters for different learning styles. The use of discussion groups as a means of facilitating communication and collaboration has also been rated highly by students. Students see these as a useful resource, as individual contributions remain as a written record after the discussion is completed. One student commented that this was a major benefit of the programme, which a classroom does not provide.

The main weakness of the programme, as perceived by the students, is the workload. Although the number of learning activities students are required to engage in has been reduced since the programmes first presentation, there is still some concern. Students have stated they have "more work to do on the distance course than students on the taught programme". Students also feel the activities do not always stimulate discussion, one student commenting "Most times I just post my contribution and leave it at that!" Other students have highlighted "it is always the same four or five of us who contribute!" However the students did evaluate the e-learning platform positively, stating that it fostered communication both between themselves and with the programme team. Those students who were studying alone found this particularly useful, leaving them feeling less isolated. One stated "It was great to be able to plan and present a paper with Sam in Reading. I knew that whenever I needed advice or just wanted to moan someone was on the other side of the screen and that made me feel better". She went on to say "The tutors always responded to messages promptly and that was really helpful and made up for the fact that I was on my own, although it would have been nice to have met them!"

An interesting finding of the evaluations has been the location of students when accessing the e-learning platform. The majority of students stated they accessed the system from home and rarely utilised the designated PCs within the intensive care units. This was also found to be the case with preceptors.

6. Conclusion

The faculty considers the post-qualifying intensive care nursing programme by distance learning to be an overall success, to the extent that the conversion of other clinical nursing programmes to the format is being pursued. The programme now attracts both national and international students, something which helps increase revenue and therefore of particular interest to the faculty. This would have not been possible with a taught programme, or an older ENB validated programme, which only had value in England.

From the experience of developing and running the programme the course team have concluded that the choice of e-learning platform is largely irrelevant, although given the choice, the team would probably opt for one with an integrated e-mail application which received as well as sent mail, because it would help standardise the support process.

Finally, after three years, the subjective view of the intensive care staff, managers and course tutors is that the learning of the students is not disadvantaged, and that this mode of delivery offers many benefits to both the hospitals and the students.

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Notes on Contributors

Justin Macklin MSc, RGN, RNT, CertEd (FE) has two roles in the Faculty of Health and Human Sciences and Thames Valley University. The first is Head of Internet and Multimedia Development and the second is E-learning Co-ordinator.

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Professional challenges and pedagogical opportunities pertaining to virtuality in Higher Education: "I'm a virtual lecturer but I need real help"

Loykie Loïc Lominé

AOL (Academics On Line) Discussion Board

Message posted by: Dr Bloggs (10 June 2003, 10.30am)
Title: Real help needed by new virtual lecturer!

Colleagues,

I have just been asked (or rather: told!) to deliver one of my undergraduate modules online next year – but that's totally new to me – sending e-mails and surfing the Net is one thing, but teaching online is another! Where/how should I start? Any idea/suggestion/recommendation? I am a bit worried...

Thank you!

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Message posted by: Prof. Hercule Poirot (10 June 2003, 10.43am)
Title: Re: Real help needed by new virtual lecturer!

Dear Dr Bloggs,

E-teaching is a relatively young area of scholarship, but it already has its concepts, models, gurus and key texts, as well as its conferences and areas of disputes. There is already a plethora of good texts on the topic, from the second edition of Laurillard's seminal book 'Rethinking University Teaching' to Sloman's book on the e-learning revolution – most titles actually seem to juggle with the same keywords (technology and/in/for education, online teaching and learning...) and authors probably struggle to come up with original or differentiated titles (Check Stephenson's 'Teaching and Learning Online', Jolliffe's 'Online Learning Handbook', and Murphy's 'Online Learning and Teaching with Technology') – for that mere reason, the most original title of Katz's 'Dancing with the Devil' deserves some credit!

In Britain, the most commonly quoted reference is probably Gilly Salmon's work on e-moderating – she is often mentioned for her five-step model for online asynchronous teaching, but page 40 in her first book (called 'E-moderating') you will find a synthetic table identifying the characteristics and competencies of good online lecturers (for some reason she calls them e-moderators but you do not have to adopt her phraseology). Ranging from online communications skills to content expertise, this framework is most useful and it can definitely help you both reflect upon your current abilities and analyse your developmental needs in order to teach online efficiently and professionally.

In a previous study, which is almost a classic reference, Mason makes the distinction of the three responsibilities of online tutors (at social, organisational and intellectual levels) can equally be useful in terms of staff development and PDP (personal development plan) if this is what you need.

Like for any piece of research, dear Dr Bloggs, you need to start with a substantial literature review to understand the theoretical underpinning of online pedagogy – as always, solid books and strong articles are a 'passage obligé', an unavoidable pathway. The texts I have mentioned, amongst many others, offer a possible gateway, and their bibliographies can direct your further reading, depending upon the books available in your institution's library.

Yours sincerely,

Professor Hercule Poirot

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Message posted by: Prof. Sally Brown (10 June 2003, 9.12pm)
Title: Re: Real help needed by new virtual lecturer!

Dear Bloggs,

I agree with Poirot that the literature on online teaching is rapidly expanding and has already provided some interesting theorising/modelisation, but please do not confine yourself to traditional sources like printed books: there are many resources available online (and *only* online) which are excellent too. Don't disregard them under the pretext that they have not been validated by the traditional double blind peer review scheme so many academics consider a professional warrant of quality and excellence. That kind of RAE-inherited attitude cannot fully apply to e-teaching which remains an emergent area of scholarship: best practice, the most useful papers and the most stimulating authors are not necessarily tied up to a few conventional journals where slow and lengthy processes would result in obsolete publications negating the principles of instant eclectronic information sharing and online knowledge creation which constitute the very basis of e-teaching. At the ITLHE (Institute of Teaching and Learning in Higher Education), we commission and publish the type of straightforward, reader-friendly, practical papers you may be looking for if you are new to e-teaching – for example we have recently added a brilliant presentation of good practice in e-teaching by Mirabelle Walker and a most useful lexicon of the language of e-teaching by John Roscoe. Those papers and many others are available to ILTHE members on the ILTHE website (one more good reason, if any, to join the ILTHE).

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Message posted by: Ms Jane Marple (11 June 2003, 5.22am)
Title: Re: Real help needed by new virtual lecturer!

Embarking on an exploratory reading on the topic of online teaching and learning is most laudable, but in my opinion you will not necessarily find the most valuable tips and ideas in articles produced by academics from other institutions who may be working with software, systems, students, courses and approaches very different from yours, from your own environment, from your own context. For online teaching, like anything else for that matter, you should start by looking around you, in your close vicinity: ask people in your own institution – you are likely to find colleagues who are either in the same situation or just one step ahead. The former ones can help you reflect upon your collective needs as a group of neophytes (for instance to have staff development workshops organised for you all); the latter ones will be worth listening to, for three reasons: firstly, you will thereby ensure that you use the same terminology as your colleagues, which otherwise could be quite confusing for your students; secondly, the problems your colleagues may have encountered and the mistakes they may have made can be valuable lessons for you; thirdly, it seems a good opportunity to meet colleagues with whom you would not normally interact, as nowadays the academic dynamics of most institutions tend unfortunately to isolate staff rather than making them meet, talk and work together as one close intellectual community.

Ms Jane Marple
St Mary's Mead College of Higher Education

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Message posted by: Sir Max Mallowan (11 June 2003, 7.06am)
Title: Re: Real help needed by new virtual lecturer!

Bloggs,

My two cents' worth, a lesson learnt the hard way: online teaching (be it synchronous through audio/video conferencing systems, or asynchronous like this forum and comparable discussion boards) is very different both from F2F (face-to-face) and from text-based distance education. It is a steep learning curve and it is not because you are a good classroom lecturer that you will straightaway be a good online lecturer (or e-tutor, e-facilitator or e-moderator if you prefer fancy words). What worked best for me was to join an online course as a mature student – and every single person I have spoken with, who experienced being an online student before becoming an online lecturer, praised it highly. You then really discover what it feels like to be on the receiving end – it is practical and empirical, some might say it lacks theoretical underpinning but it really worked for me– you do not need all the nice theories and models, at least not at first, they'd just confuse you or remain too abstract if you cannot relate to any hands-on practice.

Yours truly,
Sir Max Mallowan

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Message posted by: A. Hastings (11 June 2003, 9.15am)
Title: Re: Real help needed by new virtual lecturer!
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A brief contribution – I happen to have in front of me the DfES official 2002 Strategy Task Force Report called 'Get on with IT: the post-16 e-learning strategy task force report' (quite a mouthful!) – let me just copy for you their definition of e-learning (page 2): 'learning with the help of information and communication technology tools; these tools may include the internet, intranets, wireless networking, PC (personal computer) based technologies, handheld computers, interactive TV and also e-technology to support traditional delivery for example using electronic whiteboards and video-conferencing'.

Folks, don't forget that, behind all developments in HE, there is always the shadow of the government, through the DfES, through HEFCE, the QAA, the RAE...

Moving towards a learning society, comrades?!

Regards,

Arthur Hastings

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Message posted by: Dr Bloggs (11 June 2003, 10.43am)
Title: Yes, but is it for me?

Colleagues,

Thank you very much for your contributions – most useful – of course I see how I could (easily?) learn about online teaching, but you see I am not too sure that it is for me... For at least three reasons: My subject does not seem not suitable, my IT skills are not good enough and my students do not need it anyway...

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Message posted by: Dr Loykie Lominé (11 June 2003, 11.59am)
Title: Re: Yes, but is it for me?

Dr Bloggs, your situation is most symptomatic of the three common problems with online teaching (though by no means the only ones):

- More often that not, it is not done for the right reasons, i.e. the development of online learning and teaching is not pedagogically driven but financially or politically driven.
- More often than not, tutors do not really know nor understand why they have to teach online, let alone what it will mean and imply at a practical level.
- More often than not, students are not consulted when the e-courses are being designed and developed – which is most paradoxical as the move to online learning and teaching is often presented as a tenet of student-centred pedagogy.

Yet I have to disagree with you when you justify your negativity and hesitation – what you refer to are misconceptions and myths – last year I wrote an article identifying and illustrating common myths heard from academics reluctant to discover and engage in online teaching and learning: 'Online learning and teaching is not for me because my students are very happy with the way my course runs', 'Online learning and teaching is not for me because I do not understand the jargon'... If you are interested, that paper is available online through the website of my Learning and Teaching Support Network (www.hlst.ltsn.ac.uk/johlste/index.html) but just to briefly address your three misconceptions:

(1) You believe that your subject is not suitable, but reports by academics, case studies used to share and disseminate good practice and books like Murphy's 'Online Learning and Teaching with Technology' tend to show just the opposite: all fields and subjects, from music to business and from dentistry to languages, seem to lend themselves quite well to online teaching and learning – now you did not say what your own area is, but I doubt very much that it could be totally and irreversably impervious to web-based learning and computer assisted instruction. Remember that online work can take many forms, from collaborative learning on discussion boards to research on the internet via online quizes and numerous other activities (many of which still remain to be invented!)

(2) You argue that your IT skills are not good enough, but in my opinion the notion that online teaching requires a high level of IT literacy is a myth readily perpetuated by some tutors desirous to be admired as if they had mastered highly complex and specialised IT skills. There is a growing number of software applications created for online education – an increasing number of British institutions are buying WebCT and Blackboard, but many prefer to have their own in-house systems. Either way, the designers are well aware that their target market is not composed of IT

specialists, but of tutors with understandably limited IT abilities: the programmes they produce are increasingly user-friendly and make it quite easy to set up a discussion board for students to post messages, or an online quiz to test their knowledge and prepare for their exams. Learning to use these programmes is not more challenging than learning to use Powerpoint or Excel. It is certainly a learning curve: the first hours and the initial tasks may be comparatively difficult, but the more you practice, the easier it gets. As Powerpoint and Excel offer sophisticated functions many people are unlikely to need and master, online teaching software will contain elements beyond first-timers´ grasp, but this is not a valid excuse in the refusal to start.

(3) You think that your students do not need it anyway, but how can you be so sure? It is difficult for students to evaluate the quality and potential of any change they cannot necessarily test or imagine. Students' opinions of online learning and teaching certainly reflect the spectrum of opinion of their tutors: a progressive minority are likely to be extremely interested and willing to work with computers as much as possible, while a conservative minority will be very reluctant, almost by principle. The majority will be somewhere in the middle, concomitantly happy to give it a try (because it is different) but a bit anxious too (precisely because it is different, and also because computers often retain an aura of technological complexity). That attitude towards change and technology is human and predicable, yet there is a strong argument in favour of online work, based on the increasing importance of computers all around us. Again, I do not know which career paths are open to your students, but I doubt very much that improving their IT skills could be detrimental to them.

Feel free to contact me if you have any question/comment: Loykie.Lomine@wkac.ac.uk

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Message posted by: Russell Butson (11 June 2003, 1.13pm)
Title: Re: Yes, but is it for me?

Lominé seems to think that this forum is a good site for self-publicity, so here we go: I too recently published an article most relevant for that discussion – in BJET (the British Journal of Educational Technology) – a purposefully provocative article in which I critically denounce the current and ill-founded technology hype that surrounds us. As I wrote, we are caught up in a technologist culture and if I were you, Bloggs, I would resist as much as possible against that misguided belief into the benefits of online teaching and learning.

Best,
Russell Butson

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Message posted by: Dr Tuppence Beresford (11 June 2003, 3.15pm)
Title: Re: Yes, but is it for me?

Dear colleagues,

My recent experience can help illustrate some of the above-mentioned points and further develop the discussion. I have been working as an associate lecturer for the Open University for a couple of years and one day last year I was told that for its next run my course would be supported online, instead of the standard classroom sessions we had on a regular basis. I did not think it was appropriate, useful or necessary and I can definitely recognise the three fundamental problems outlined by Loykie Lominé. Most of my closest colleagues felt the same, except for a couple of technophiles, or “tecchies” as we call them – but then such early adopters and innovators will always exist. We only had some basic training and were told to practice together. Just before the first sessions we were all quite nervous, anxiously waiting from feedback from one another and living on reciprocal support. What if the system crashed, what if the technology did not follow, what if the students did not follow, what if we tutors did not follow either? Now I cannot rationally say that a technological or educational miracle took place, but everything went very well for all of us, despite a few minor occasional hitches (which have their equivalent in classroom sessions anyway, like when the OHP does not work or the room is too cold). Three main reasons seem to account for that success:

- No matter whether it is for a classroom session or an online one, being thoroughly prepared as well as student-centred and supportive is always the key to ensure a successful session (and with hindsight we were so anxious we were all over-prepared) – after a few months I am now a better online teacher and I will gradually make more progress, identifying better ways to use the technology; of course you can read the books and online articles mentioned by previous contributors, of course you would benefit from joining an online course

yourself (if you have time!) but a little secret is empathy: take your students' viewpoint and perspective – they too will be anxious and you need to guide them, to reassure them, to support them (like you facilitate their learning).That cannot be just improvised, you need to carefully prepare your sessions (and gradually you too will develop more confidence) with your objectives, material, activities...

- Technology can go wrong (and of course sooner or later it will) but there is nothing you and I can do about it, and that's not something we need worry about. As teachers we are expected to teach: there are other people who are responsible for the technological side of things, it is their job and they are as keen as us to see everything work smoothly (the connection, the interface, the communications...)

- Despite our doubts we tried to be as positive as possible, and it worked (not to mention the fact that it also helped the students become more positive: enthusiasm is contagious, and so is the faith in the advantages of online teaching and learning). Being negative is too easy, and indeed those colleagues who started too reluctantly did not make as much progress as those of us who accepted the challenge. A challenge it certainly was, both professionally and pedagogically – and still is – and initially we would all have prefered to teach in the traditional classroom-based way we were familiar with, but in the end it really proved fun – both for us and for our students.

Although we were all rather unsure and unconvinced at the beginning, most of us have gradually discovered and appreciated the benefits of online teaching – and some of us now even prefer teaching that way – so good luck Dr Bloggs; who knows, in a year's time you too might be a convert!

Best,

Tuppence

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Message posted by: A. Hastings (11 June 2003, 5.03pm)
Title: Re: Yes, but is it for me?

I wonder, Tuppence, whether your experience isn't somehow biased by the fact that you were using teaching material specifically written for online purposes by OU staff – which is presumably not the case for Dr Bloggs and certainly not the case for most other academics who have to do it on top of all other commitments (teaching, research, administration…)

In my faculty, I oversee quality and I am very aware of the issues pertaining to the suitability of the material used for online teaching – and a constant problem (articulated by most staff I have spoken with and regularly mentioned in the literature on online teaching and learning) is the fact that it takes a lot of time to prepare material and activities to teach online (usually longer than anyone anticipates!)

A recent article by Kewell and Beeby published in 'Teaching in Higher Education' illustrates how staff in a university business school had to design learning resources for online use – they realised that it proved much more difficult and time-consuming than expected, even for staff with very high IT skills. This is a comment (or rather: a complaint!) I keep hearing, even from academics who are most enthusiastic about online teaching. Appropriate resources are rarely allocated, be it in terms of staff, training opportunities or even time (if not cash and salary levels!); when they are mentioned, opportunity costs (e.g. time taken away from research or working with more familiar systems) tend to be underrated – which is why I strongly believe that online teaching is not just an issue for academics or even staff developers, but also (and critically) one that managers need to address.

Regards,
Arthur Hastings

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Message posted by: Ariadne Oliver (12 June 2003, 2.26am)
Title: One step further...

Dear all,

I must say that I have really enjoyed reading all your recent messages – I have learned so much, I feel like I should contribute too like to give something back – I don't want just to be just a lurker/sponge/freeloader! In my view,

what took place here since Bloggs started this discussion by posting his first 'please-help-me' e-mail is paradigmatic of online teaching and learning, both in terms of knowledge creation and in terms of knowledge dissemination:

- In terms of knowledge creation, we have had a perfect example of collaborative learning as a joint discursive process (which is an ideal outcome of asynchronous e-pedagogy) which also illustrates the collective dimension of e-teaching – what could be called 'collective wisdom'. An increasing number of tutors indeed have, if not expertise translated into RAE-rated publications, at least valuable experience and enriching ideas about e-teaching, about problems they have encountered, about solutions they have designed, implemented, tested, rejected or even modellised on a very small scale. This wealth of emerging knowledge on the pedagogy of virtual environments is highly personalised and individualised – some would say anecdotal and idiosyncratic – but unfortunately many academics, because of their training, background and habits, do not believe in personal anecdotes as a source of knowledge. That the personal may be pedagogical is anathema to them; they do not (yet) accept the value of the collective wisdom on online learning and teaching – yet speaking with colleagues who are already teaching online is a most valuable source of knowledge and inspiration, both a theoretical and at a practical level, even if those colleagues have not formally written on the topic... maybe because they are too busy improving and developing the courses they teach online!

- In terms of knowledge dissemination, we have a perfect example of how this emergent area of scholarship can enable us to be creative and innovative. I, for one, wouldn't have read a standard article on the topic, but reading all your contributions was most entertaining, interesting – and most educational too! On the topic of online teaching and learning we all have different ideas, experiences, views and preferences, as illustrated by those messages. I would argue that writing a synthesis (in the standardised if not hackneyed form of an article) would be an unnecessary academic exercise (in the worst sense of the term 'academic'): let us celebrate the fact that we can collectively learn from each other and that several voices can coexist – we could call that polyphony, many-voicedness, multivocality, or we may even risk the Bakhtinian concept of heteroglossia....

So with this e-heteroglossia, are we in the process of conceptualising a new form of knowledge dissemination/transfer/transmission, most suitable on the topic of online pedagogy because of the implicit reflexivity, but possibly useful for many other academic discussions as well?

Any reaction/comment/suggestion?

Ariadne

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The relationship between students' orientations to learning and their use of and feelings about a VLE

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Abstract

An institution-wide survey of 209 students was conducted to explore the relationship between their use of a virtual learning environment (VLE) and their positioning in terms of three orientations to learning derived from Entwistle and Ramsden (1983) and Biggs (1987). Of all participants, 46% predominantly adopt a 'meaning orientation', 30% a 'strategic orientation' and 21% a 'reproducing orientation'. Over half of all participants have read or downloaded learning materials and read general course information. Fewer have engaged in collaborative and discursive activities or online tests and quizzes. Patterns of VLE use differ slightly between these groups. However, those who find that they benefit from these facilities tend to adopt a 'meaning orientation'. Just 4% the 184 respondents who report that 'a few', 'most' and 'all' of their modules use the VLE agree *"the notes are on WebCT, I don't go to lectures"*, none of whom adopt a 'strategic orientation'. Few in any group enjoy discursive online activities or perceive them helpful for developing their ideas, regardless of the medium in which they take place. Overall, the findings are suggestive of a 'minimum specification' for VLE use, where tutors place course information and learning materials online. The implications are discussed.

Introduction

Coventry University is a 'post 1992' institution with a student population of around 17000. The University commenced its 'learn Online' initiative in 1998. The chosen VLE, WebCT, is automatically set up for every module across the University, while its use is left to tutors' discretion (Deepwell and Syson 1999). It was the intention for the VLE to be used primarily to support traditional, campus-based programmes. Almost every staff and student personal computer on campus is connected to the Internet, and a dial-up connection service is offered for those who are off-campus.

Regarding the educational effectiveness of VLE's, the available evidence suggests that it depends on the andragogic assumptions built in by tutors. Wenglinsky (1998) found when maths teachers in the USA used computers mainly for "simulations and applications", which tend to be associated with higher-order thinking, their pupils exhibited greater intellectual development than those whose teachers used more 'traditional' approaches. Palloff and Pratt (1999) argue that collaborations in learning through interaction among students and between students and faculty are crucial for successful online learning. Cradler et al (2001) found that effective use of educational technology rested upon their integration with collaborative instructional strategies and formative feedback. One vaunted advantage of VLE's is that they facilitate collaborative learning activities. For example in describing the criteria for a 'WebCT exemplary course', Graf and Caines (2001) quote Palloff and Pratt.

Collaborative online learning invokes the issue of the students' experience of co-presence. Johannsen et al (2000) found that the most important factor in students' learning in virtual seminars may be how the sessions are organized and structured rather than the quality of the co-presence that the electronic media enables. However, Campbell (2003) describes a virtual world for language students which successfully exploits 'telepresence', a sense of immersion in a virtual environment, as a tool to promote powerful conceptual change within a constructivist model of learning. Students' motivation is also important. Sherry et al (2001) found that the motivating aspects of web-based learning correlated positively with increased levels of metacognition in learners, leading to more effective learning. VLE based teaching using authentic tasks have been found to be associated with positive attitudes to study (Wenger et al 1999). Selverian et al (2001) found that telepresence is associated with student's motivation, and so is likely to impact upon student's learning. Also important are the predispositions that students bring. Leopold-Lüsmann (2000) found that students' learning styles interact with models of teaching and learning that a tutor has designed their VLE use around; mismatches can inhibit learning.

The present research explores another aspect, the students' orientations to their learning. The original work in this area by Marton and Saljo (1976) has been developed by Entwistle and Ramsden (1983) and Biggs (1987), who identified thee broad approaches to learning that students adopt in response to the perceived demands of the teaching and learning environment. They are broadly a 'reproducing orientation', memorising course material to reproduce it in assignments so as to least pass the module; a 'strategic orientation', organizing one's studies and managing one's time to achieve the very best assessment grades possible; and a 'meaning orientation', to be interested in a subject and seeking to develop one's understanding of it by relating new material to one's existing knowledge and experience. Haggis (2003) offers strong criticisms of recent 'approaches to learning' research literature, claiming there is evidence of the model being uncritically assimilated in, and of a 'verificationist' corruption of the hypothetico-deductive approach in some recent research. Haggis also argues that the model is biased towards the viewpoint and values of 'elite' educators. This sentiment is shared by Winter (2003: 114) who comments upon Biggs (1999):

"Biggs' account shows even more explicitly that 'deep learning' simply represents our basic professional aspirations as educators, and 'surface learning' merely formulates our sense of frequent failure, frustration and disappointment'

On the other hand, it is arguable that the majority of academics in Higher Education, who would after be involved in curriculum development, will subscribe to 'elite' values to some extent. Thus the present research may at least evaluate students' use of WebCT in terms recognizable by tutors.

Haggis' arguments underline the importance of adopting the explicit caveat that the identified approaches to learning have an acquired, strategic, elicited, and motivational quality. Winter's comments on the matter perhaps demonstrate the pernicious influence of 'elite' values on tutors' perceptions:

"All to frequently our teaching fails to elicit more than an attempt by students to 'play the system'. Instead of what anyone would mean by education, we are faced with a combination of ritualism, deception and collusion."

Haggis cautions that the 'approaches to learning' model carries an implicit notion that students arrive in higher education able to relate their conception of and approaches to learning to their perceptions of their learning environment. Furthermore, haggis argues that 'elite' values may not be relevant to every student as participation in higher education widens. One further criticism, that Haggis does not articulate clearly, is the model's implication that learners' uncritically assimilate abstract 'knowledge' that has been vetted and transmitted by academics.

A further caveat relates to general methodological issues that beset survey research into approaches to learning. Haggis (2003) warns of the phenomenological nature of the results elicited, in that they represent respondents' impressions of rather than their actual behaviour (Mitchell 1994: 202) and of 'response sets' including social desirability (Watkins & Regmi 1995), perhaps be a natural reaction to the implicit hierarchy of value conveyed in the descriptions of orientations to learning. While it is likely that learners will adopt different orientations for modules that they favour highly and those that they do not, it is arguable that they will tend to adopt predominantly one orientation to learning, reflecting the relative 'strength' of their confidence and acquired study skills as well as their personal interest in their degree programme.

Participants

A total of 209 students (1% of all students), 95 men and 112 women, participated. Their ages ranged from 18 to 50, however 87%, were aged between 18 and 30. Judged by eye, the sample had a slightly higher proportion of UK Black and Asian students than in the ethnically-diverse student population as a whole. 86% of those participating were UK/EU students, the majority from the UK (94% of 'young undergraduates' at Coventry are from the domestic state education sector). 10% were from non-EU countries (8% of all students were from non-EU countries). 90% of respondents were full-time students, the majority, in years one, two and three of their degree. The sample is biased towards this group; of all students, 69% study full-time and on 'sandwich' courses and 29% part-time.

Procedure

A structured questionnaire was deployed, produced in the Keypoint questionnaire authoring software. It included a single 'approaches to learning' question, with three options, brief descriptions of a 'reproducing orientation', a 'strategic orientation' and a 'meaning orientation' from which participants were asked to identify their main approach to learning. Two other questions enquired into their engagement in VLE-based activities, and their feelings about them. Raw data were entered into Keypoint, which automatically loads them into an inbuilt spreadsheet with facilities for generating descriptive statistics such as graphs and percentages. Participants were selected by opportunity sampling from those present across the entire geographic area of the campus, to control for any bias that may have resulted from sampling in one particular area. They were asked invited to complete a short questionnaire about their use of WebCT, part of an ongoing evaluation of the 'Learn Online' initiative. Approximately four-fifths of those approached agreed to participate.

Results and discussion

The first issue is the perceived extent of modules actively using the VLE. 38% of all participants report that 'a few' of the modules comprising their degree programme do so,

26% agree that 'most' of their modules do so, and 24% that 'all' of their modules do so; together the latter two groups account for 50% of all respondents. Just 11% report that none of their modules actively use the VLE (see Figure 1).

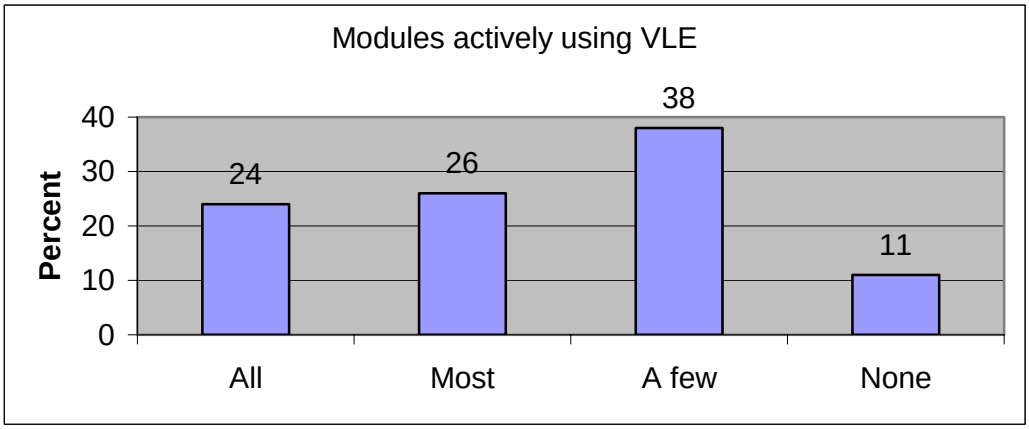

Figure 1: The overall perceived proportion of each students' modules actively using WebCT across the University

Turning to how the respondents differentiate by their orientation to learning, 46% see themselves as predominantly adopting a 'meaning orientation'. Next are the 30% who adopt a 'strategic orientation'. The remaining 21% adopt a 'reproducing orientation' (see Figure 2).

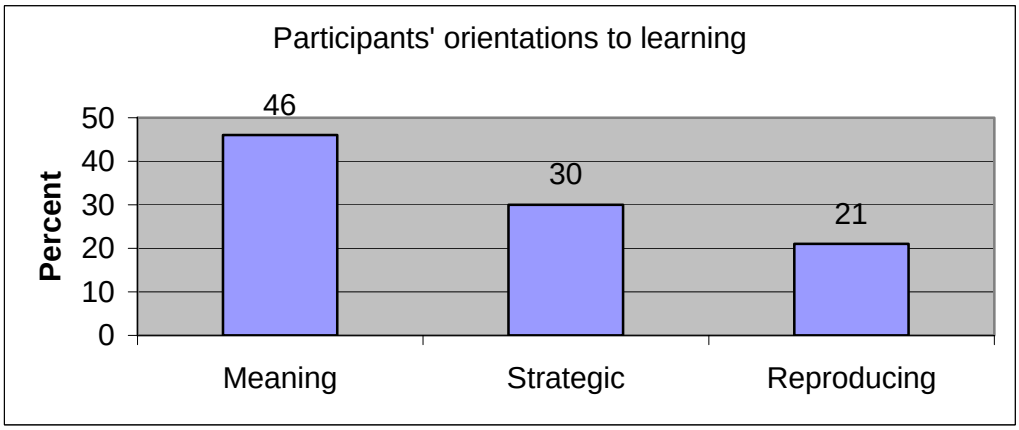

Figure 2: The percentage of all students who judge their approaches to learning as falling predominantly within each category

The next consideration is what the students do in relation to the VLE (see Figure 3 below). Over all respondents, the most frequently reported activities are as follows: 57% read learning materials, 52% download learning materials and 51% read general course information. However, a smaller proportion adopting a 'strategic' orientation tend to do so that those with 'meaning' or 'reproducing' orientations. Interestingly, just 14% of all participants have accessed external Web pages. One potential advantage of the VLE is that it supports hyperlinks to relevant materials on the World Wide Web. It is unclear whether such links exist but the students have not taken them up, or whether few module tutors have provided hyperlinks.

Less common are assessment and discursive activities. WebCT supports automated online quizzes and tests, which potentially offer efficiency savings for tutors, and rapid feedback for students. 21% of all participants have participated in such tests. It seems that there has been a limited take up by module tutors, when one considers that 50% of all participants report that 'most' or 'all' of their modules use the VLE. Turning to discussions, 28% have shared information or discussions with tutors, with a slightly larger proportion of those adopting a 'reproducing' orientation doing so than those adopting 'meaning' and 'strategic' orientations. Of all participants, 25% have shared information and discussions with other students. 20% have engaged in group work and 11% have participated in online tutorials.

The students' feelings about the using the VLE are illustrated below in Figure 4. Regarding online learning resources, 31% of all participants agree that having everything in one place is useful. They comprise 56% of those who adopt a 'meaning orientation', 11% who adopt a 'strategic orientation' and 13% who adopt a 'reproducing orientation'. Overall 21% agree that *'its good for studying/revision'.* They comprise 36% of those adopting a 'meaning orientation agree, 8% of those adopting a 'strategic orientation' and 7% of those with a 'reproducing orientation'. It seems that those adopting a 'meaning orientation' are most likely to perceive benefits when modules actively use a VLE.

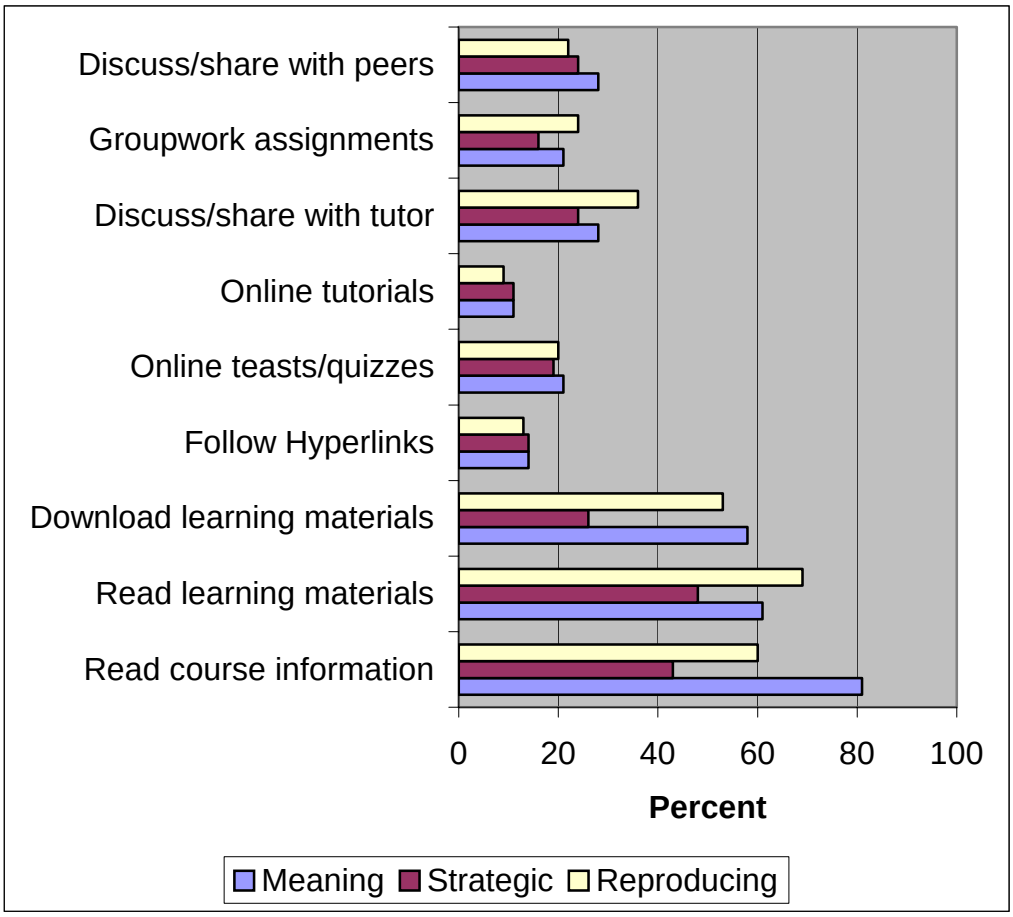

Figure 3: Proportions of those adopting each orientation to learning who engage in various online activities

Turning to the perceived benefits of online learning materials, 22% of all participants agree that having notes available on WebCT means they can listen properly in lectures. They comprise 38% of those adopting a 'meaning orientation', 8% of those with a 'strategic orientation' and 4% with a 'reproducing orientation. Just over 4% of the 184 respondents who report that 'a few', 'most' or 'all' of their modules actively use the VLE agree that they don't go to lectures because the notes are online. They comprise 10% of those who adopt a 'meaning orientation' and 7% with 'reproducing orientation', very similar proportions. Interestingly, none who adopt a 'strategic orientation' to learning agree. This is perhaps unsurprising; the orientation is associated with organising one's studies and managing ones time to get the best possible marks.

Turning next to discursive activities, 28% of all participants have shared information or discussions with tutors. Only 11% have participated in online tutorials. Interestingly, 27% of those adopting a 'meaning orientation' find it easy to email tutors, compared to 4% of those with a 'reproducing orientation' and 3% with a 'strategic orientation'. One might expect a similar proportions from each group were they referring to 'technical ease'. Regarding collaborative working, 20% of all respondents have participated in online group work, and 25% in online discussions with fellow students. Those who enjoy contributing to discussions comprise 7% of those who adopt a 'meaning orientation', 2% of those with a 'reproducing orientation' and none with a 'strategic orientation'. The figures can be compared to those enjoying face-to-face discussions; 13% of those with a 'meaning orientation' and 5% with a 'reproducing orientation', slightly greater proportions. This hints at a loss of quality in online, which one might expect given the severely limited 'bandwidth' of text-based online as compared to face-to-face interactions (Nelson-Kilger, 1993). However, no one who adopts a 'strategic orientation' enjoys face to face discussions, suggesting that discussions themselves are problematic. This tends to support Johannsen et al's (2000) finding in relation to virtual seminars: the quality of co-presence enabled by the electronic media is less important than how sessions are organized and structured. Concerning perceived benefits to learning, those agreeing that peer-to-peer discussions help them to develop ideas comprise 9% who perceive themselves to adopt a 'meaning' orientation', 3%, of those adopting a 'reproducing orientation' and 2% of those adopting a 'strategic orientation'. This appears to undermine the constructivist philosophy, which emphasises community, dialogue and shared understanding (Bird, 2002), however, there are likely to be three adverse factors at play.

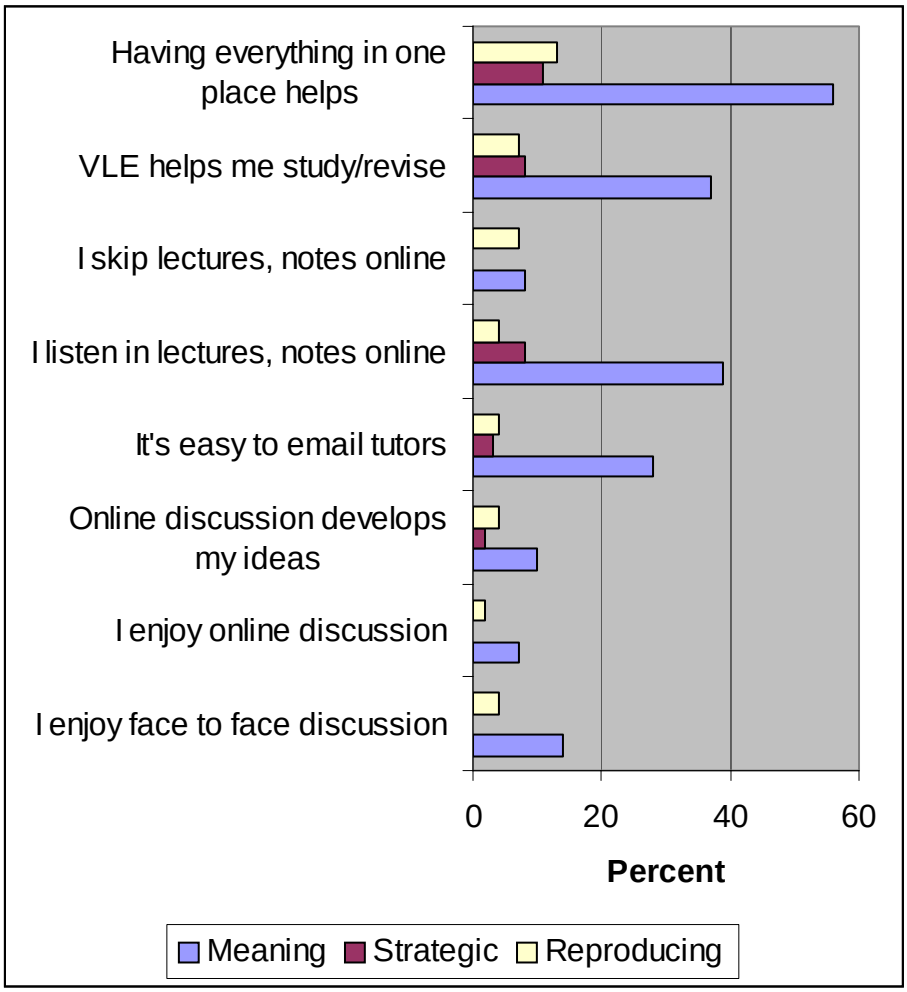

Figure 4: Proportions of those adopting each orientation to learning whose feelings about VLE use fall under different categories

The first are ontological standpoints of academic disciplines. Coate *et al* (2001:159) found they influence perceptions of appropriate teaching and learning activities. For example, tutors of History, or those approaches to Sociology with underlying constructivist ontologies, tend to be more likely to perceive synergies between teaching and research than those whose disciplines have an underlying realist ontology. The second are students' prior learning experiences. For example, Savin-Baden (2000) argues that students with little prior experience of problem based learning, where collaborative discussions play a key role, must learn to recognise and value their own learning experiences and their role in developing their learning. Students are unlikely to be motivated to participate in peer discussions if they don't recognize their value. Price and Lapham (2002) sought to incentivise students' participation in online discussions, making this worth up to 30% of their final grade. Finally, the way such discussions are implemented is likely to exert a strong influence. No one who adopts a 'strategic orientation' enjoys the discursive format, online or otherwise, or finds that it helps them to develop ideas. Close attention to format and degree of structure may change this.

Conclusions

The most frequently reported online activities are reading and downloading learning materials and reading general course information. The pattern is similar across those who

adopt ‘meaning’, ‘strategic’ and ‘reproducing’ orientations to their studies. Furthermore, posting lecture notes online leads few participants to desert lectures. Many appreciate the VLE as a central source of module information and learning materials. This is suggestive of a ‘minimum specification’ that enhances students’ learning. However, those finding these provisions beneficial tend to adopt a ‘meaning orientation’ to their learning. This does not necessarily mean that using a VLE builds inequality into the learning milieu. The present research, conducted in a ‘post 1992’ university with a commitment to widening participation, found that 46% of participants claim to adopt a meaning orientation. It is unknown whether they tend to have strong academic backgrounds, or if they are a diverse group sharing a deep engagement in their learning. Furthermore, the present study does not explore the value added by on-demand access to the VLE for students from ‘non-traditional’ backgrounds, for example, those who have dependent relatives. It remains possible that careful structuring may lead to online materials and activities that offer benefits to learners of all orientations. This invokes McAlees (1997) argument that educational innovation is praxis, an interplay of the theories of education serving as intellectual frameworks and the tools deployed, the ‘technology in education’ into a 'technology of education’. In short, it is meaningless to try to disentangle the technology *in* education from the technology *of* education.

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The Islamic Azad University: The Success Of Privatization of Higher Education in Iran

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Introduction

Higher education in an era of emerging organizational models, being recognized as one of the principal social affairs and delicate an endevor, can not and should not be left with the government alone. In an attempt to lighten the government's responsibility to provide the nation with higher education, Islamic Azad University was establishal in Iran. With the growing tendencies of Iranian families in making their children enter universities along with the soaring demand for higher education, the government itself could not have been able to satisfy the needs. As with the governments in the so called Global village, the Iranian government too, suffers from similar shortcomings. So it would not be fair and even rational to expect it to take the responsibility single handedly as the sole higher education providers. The problem rises from the fact that as the population increase in number, so does the demand for higher education but the facilities do the reverse. IAU proved itself as the only body to solve the problem prudently. There are many pieces of evidence which clearly demonstrate the success achived by IAU in privatization of higher education, significant enough to be modeled after IAU by countries around the world, especially by developing ones.

In the light of a simple comparison, the extent to which IAU proved itself to be even more efficient than the state-run universities will be elaborated on. It has outperformed its counterpart institutions in providing human resources and capital management while creating an encouraging atmosphere to welcome its peers to compete in the absense of which its peers could not have been able to achive academic standards.

Creating job opportunity is what the IAU is doing well in the country with no budgetary support from the government. The IAU relies mainly on public supports and collaboration and in so doing it has enjoyed a top managerial experties in removing the threat to opportunities and altering a weakness to strength.

This has not been achieved without a prudent management. Caring for public needs, and fast responsing to them are other crucial characteristics of the IAU. It tries to adjust its structure to new demands as arise in the society in general and scientific society in specific. It struggles to escape from negative impacts of traditional and non-efficient bureaucratic structure rooted in Iranian higher education system.

This University has been established after Islamic Revolution in Iran. Until now approximalely one million students have been graduated from it and many of them have beem employed by governmental and non-governmental sectors in Iran and abroad, so it plays a significant role in Iranian economic and cultural process.

The IAU has established well over 170 branches in different cities in Iran and 3 branches abroad. In other words, IAU meets over %50 of Iran's higher educational needs. (see appendices 1-4)

Thousands of research projects have been fulfilled and hundreds of books and articles published in periodicals in IAU. This institution sponsored hundreds of postgraduate students to finish their studies of which the most learned ones were selected and employed as lecturers.

The IAU: The necessity of Iranian society

It can be claimed that IAU has been established as a necessity for Iranian intelligensia after the Islamic revolution; the origins of this necessity could be summerised as follows:

1. Continuing changes in the world regarding educational systems and higher education standards.
2. Islamic educational teaching and its emphasis on seeking knowledge.
3. The increasing demands of different layers of the society for educated individuals .
4. The growing rate of population and increaseing demand for having higher education.
5. The necessity for privatization of higher education and exploiting private sector facilities.
6. The need to reform the educational system in Iran.

Before IAU being established, only a handful of universities have been practicing, though as a result it could not meet the increasing demand of the society for higher education.

Those limited number of universities were founded mainly in the capital of the country, Tehran, and few major cities making it had to enter higher education for Iranians. In this situation, the development of higher education proved to be a necessaity. The public sector seemed helpless and unable to do the task. The only possible and practical way out of this problem was relying on private sector and moblizing the efforts in programing and planning for private higher education. In this direction, Iranian people have welcomed and supported the IAU as a way to pave towards developing higher education in Iran. In this way. The IAU with Islamic charachteristics, popularity, flexibility and geographical disturbution turned out to be the most rational and positive a response to Iranian rightful desire.

The IAU, a non- for – profit, non-governmental system of higher education, was founded in 1982 to do the needful for specialized manpower and development. The IAU is fully accredited by the Supreme Council of Cultural Revolution and its constitution was approved by the Iranian parliament. Its spritual founder, late Imam Khomeini denoted Ten million Rials to this University in its first days of activities. The university manages its financial affairs independently without any governmental financial support. Public supports and studens tuition are its budget resource. Twenty years ago, the University, buildings were small in humber; but gradually it succeeded in developing itself, proving that nothing succeeds like success, its achivement is comparable to those of state universities and sometimes overriding them. Concerning millions square meters of land in possession, the IAU is dynamic and fast changing a university and its steady expansion is mirrored in its broad in range and increased in number of its undergraduate taught courses.

The IAU invites and welcomes all students who wish to further their education in the university programs. About 20 years of experience highlights the university's outstanding achievement in the promotion of higher education. It plays an effective role in materializing the agreed upon goals and objectives of the 21st century, the age of knowledge as declared by noted scholars world over.

Students who complete the Islamic Azad University programs master the true breadthe and depth of understanding both in terms of theory and practice. This will enable them to work creatively within their disciplines. These graduates have shown goo academic standing and performance in other parts of the world. About one million students are studying in 170 campuses aroud the country, a fact evident enough that the university has outreachaed its goals to provide higher levels of education which undoubtedly promisses a brightful future for the nuiversity.

The IAU: A window of opportunity for Iranian families

The IAU as a product of Islamic revolution has played a valuable and vital role in promoting the culture and science in the society. Before Iranian revolution, higher education centers in Iran were

limited. Many Iranian families were not able to send their children to university. But now, with establishment of IAU in 170 cities of the country, higher education has become available. Many students now, are able to study in their homtown close to their families. Meanwhile, many parents themselves are completeing their studies in the same universities, a.g. in part- time programs. Since estblishing the IAU, the following achanges have been brought about in the country.

1.As the IAU established its branches in far- reaching, parts of the country, the rate of immigration from small towns to big cities has been remarkably decreased.

2. Many Iranian families enjoy seeing their childerns studying in their own cities, as the IAU made the higher education facilities available in different regions.

3. The IAU increased the possibility of life- long education.

4. Before establishment of IAU, many Iranian young people were willing to go abroad to pursue their studies. This was an economic loss and many of them remained abroad, but now the number of these students is remarkably decreasing.

5. The IAU, helped promote the entire cultural and scientefic lives of the society.

The Role of IAU in cultural, economic, social and political development of Iran

Training and education can be seen as the main factors in improving living conditions and standards in the modern world today. All societies, more or less, consider education, especially higher education as their main concern, and are prepared to pay the price for it. It has been told that educational expenses is placed secondary to defence and military expenses. The main objective of higher education is to promote society's cultural lives and assits with development in its different aspects.

It's worth mentioning that the IAU played a very important and vital role in this regard. The IAU offeret different assistance to Iranian people and government.what follows are to name a few:

1. Educational ground: providing the possiblity of education in different Iranian provinces in both graduate and post-graduate levels. The IAU has paved the way for thousands of Iranian students, teachers, experts, lecturers and common ordinary people to continue their studies.

2. Research ground:The IAU's main role in research area as a university, is training reseachers. Meanwhile, it makes the facilities of reseach available for students and professors. This university sponsored thousands of students to finish research projects in diffirent areas. The main and major IAU center of reseach is located in Tehran, capital city of Iran. The Higher center for Research and Sciences in Tehran (Poonak) is very rich in research equipments and facilities. Many famous Iranian professors and resrarchers do work and teach in this giant scientific center.

3. Social ground :The IAU contributed to increasing the number of university students in Iran and furnished more opportunities for employment. These opportunities have been created in many far-reaching areas mostly deprived provinces, that did not have the chances before owing to traditional beliefs. Many Iranian families would not permit their female children to go to

other cities for studying. The IAU, solved this problem by establishing university branches in more than 170 of Iranian cities.

4. Economic ground : The IAU without taking any budgetary benefit from government, managed to cultivate thousands of students. This is a great assistance both to people and government. Meanwhile it created job opportunities for thousands of unemployed in Iran as university staffs, or lecturers. When an IAU branch starts working in a city, the economy of that city shows a rapid improvement. Transportation, housing and road construction and many other economic activities flourish as students arrive the city, and that city finds new scopes and opportunities.

5. Political ground : The IAU is considered to be the largest university in the whole Middle-East, much to our national glory, having passed two decades, the university now focuses mainly on quality of education and tries to find better ways to make the university more efficient. The expansion of IAU means development of thinking and mental faculties, having more educated persons, ensuring more political and social participation in the part of citizens and all of these achivements improve the political environment of Iran. Higher education as a means to an end, serves in spreading freedom, institutionalising tolerance and encouraging dialogues between civiliyations.

Conclusion

The IAU is a magnificent example of privitization in higher education. This model as it is, may used by many states in developing countries; as these states posses characteristics common among them. Islamic countries, are the most beneficial of states using this successful model. As the major problem, in many developing states is over-responsibility of governments and their over-charging in different affairs inculding higher education, the IAU model in Iran can make them escape from this crisis.

In this Iranian model, some claim that developing the higher education may lead to "rising of expectation" in the country. Rising of expectation is a problem in many states especially in developing countries. As the number of graduates increase, so do their expectations. They want better jobs, better accomodations, better living conditions. These expectations may lead to a kind of political crisis namely the modernization crisis. As the expectations increase, and the government can not afford them, a kind of disparity and disturbances increase amony young generations. They can not accept the situtation and this situation may lead to unrest and crises. For this reason some strategists recommend that the number of students in higher education should be limited. But this arguement can not be acceptable. In the case of IAU, this university postponed the want of job for some years. This delay may help the government think and plan carefuly for future. The other important implication to be considered is the distinction between higher education and employment management. It seems that governments should separate these two items and plan for them seperately. Job creations depends on other variables and problems in the country. Those problems should be recognized and solved through long term policies. It dose not mean to cease the development of higher education because of unemployment. They are two different variables. Which require to be treated separately.

The other important issue to be considered is the role of IAU in enlightening the level of public culture in the country. The increase in number of graduates in the country make them more understood and more active in the country's life. It can lead to increasing participation of people in their social, economic and political affairs. It may lead to institutionalizing of political and social activities in the country, and rejecting of dictatorship and totalitarian governments.

The last but not the last is human resources. The IAU has been succeful in training of skilled human resources. They have been employed in different public and private sectors and many of them are waiting for job vacancies. Generally speaking, the IAU is a distinguished example of privitization of higher education in Iran and developing states. It helped the Iranian government solve the higher education problems in the country. It has contributed to promoting the level of science and cultur in the country and in short, it opened a new window of opportunity for Iranian new generation.

From theory to practice in distance learning: a case study

C.Giorgi and D.Schürch

1.The reference frame.

Technologies and the opportunities they offer seem to have become a key-element in our social and cultural context. In particular, in the educational and pedagogical field, in the last decade we have been able to notice a progressive outlining of new ways of teaching and distance-learning strategies; if technology is certainly one component, what role can the hand – as a symbol of practice activity – still play? What is the relationship between manual work and technology in the professional field?

From the point of view of vocational trainers, these questions lead to another crucial problem: what happens in the transition from the acquisition of an item of knowledge to its actual application in all associated contexts? While it is indeed the case that information and communication technology can simplify working practice by taking care of those routine operations easily mechanised, the same technology also breaks the link from thought to action, introducing a discontinuity between the process of transforming an object and the mental process associated with this. What are the effects of breaking this link in actual professional situations?

2.The experience: a part of a project.

Technology, distance learning and the development of manual skills were the three key ingredients of a programme offered to two classes of apprentice bricklayers, living in various dispersed locations in the valleys of the cantons of Ticino and Grisons, as well as areas across the border in Italy, who were first year students in the Swiss vocational schools of Samaden and Mendrisio (see Figure 1).

The group of apprentices took courses in General Studies (Cultura Generale) and in Professional Knowledge (Conoscenze Professionali) either face-to-face or through ICT-based distance learning1, in particular using a virtual learning environment (VLE)2 which could be used equally as a common ground for social interaction and as a truly educational virtual learning environment.

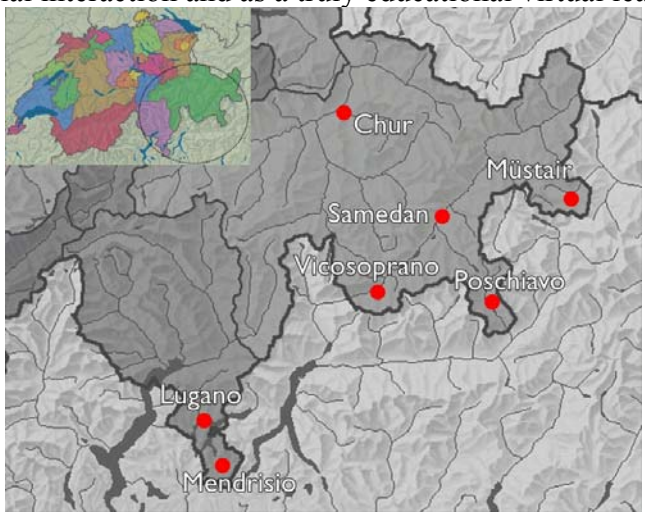

Figure 1. – The areas involved in the Project.

[1] The course ran from December 2002 to May 2003, and took the form of three 3-week distance sessions alternating with periods of classroom-based learning.

[2] For an outline of the psycho-pedagogical principles underpinning the ISPFP VLE, see Schürch D. & Giorgi C., "Distance learning: a dimension without presence?" in *Instructional Design for Multimedia Learning*.

Over the course, and precisely when the distance education phase took place, apprentices worked on a particular task regarding Professional Knowledge: the unsupervised manufacture of a brick, using only those resources available to them in the physical or virtual environment. The distant manufacture of a brick is not, however, an isolated activity. It is a part of the much wider framework of the Bricklayer Project (Progetto Muratori), a project focusing on the role of ICT in education. The project focuses on the achievement of new objectives3 in vocational education and training, and more generally on the revaluation of peripheral sub-alpine4 regions through the promotion of vocational training for the young people living in the regions concerned by the project.

The apprentices are clearly at the heart of the project, along with the individuals working closely with them, namely their teacher and practical assistant (Assistente di Pratica5); alongside these, however, revolves a relatively complex system, populated by a variety of individuals whose presence guarantees the interdisciplinary nature of the project.

3.Research questions and methodology

Knowledge acquisition is first and foremost the result of an interaction between a subject and an object of knowledge. The interaction cannot occur outside of a given social and cultural context, and the context in its turn interacts with and modifies the relationship between subject and object. This interaction produces cognitive structures at various levels that regulate the activity of the subject within the surrounding world. It is clear, then, that, given the range of different possible contexts, we cannot automatically assume the ability to apply learned strategies and prior knowledge when faced with a given problem situation. This gives rise to numerous questions:

- How does the subject, when about to embark on a practical activity, succeed in calling on his/her own theoretical knowledge and applying this operationally in the context (in the widest sense) of the job in hand? What is the guiding concept to which the apprentice appeals while undertaking the practical task? How is such a concept translated into reality?
- How is the process of operationalisation of theoretical knowledge reconstructed by the apprentice?
- How does involvement in the practical activity impact on prior theoretical knowledge? What kind of relation applies between action and theorisation?
- How, if at all, does technology serve as a tool for both facilitating and inhibiting the translation of theory into practice?

Our target objective is to identify the relationships which exist between theory and practice, and possibly also to describe the process of mediation and reciprocal exchange between the two components.

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[3] In our lifetime, the introduction of new technologies has significantly changed the way we work, but also and most importantly the way we learn, developing non-specific but widely applicable and transferable skills (such as for example the ability to organise and to autonomously manage our time). We need, therefore, not only to take these new abilities into account, but to articulate them as educational goals.

[4] The Bricklayers Project is a sub-project of the *MovingAlps* project (www.movingalps.ch), implemented in collaboration with the Jacobs Foundation.

[5] The PA-CmC, or *Practical Assistant in Computer-mediated Communication*, is a new profession that has evolved from another profession, that of the PADE (*Practical Assistant in Distance Education*), which emerged within the ISPFP in Lugano. The PA-CmC play a particularly important role in distance education projects, in the sense that they help students when they have technical problems as well as tutoring them academically. They work with individual students or with small student groups, mostly face to face but also at a distance. Their special characteristic is that they are indigenous to the region, and so share the same socio-cultural background as their students.

Because our interest focused on a practical activity, our chosen methodology was to recreate the activity itself using concrete, tangible materials, on which to base interviews with the apprentices. With the help of the teachers, we gathered together all available information about the manufacture of the bricks. In this way we eventually had available a wealth of documentation, in the form of photographs and/or texts, produced by the apprentices about the activity itself. Alongside this, we took into account the task given to the students and posted on the website. After a preliminary review of the materials, it was decided to carry out personal interviews with every apprentice. These employed the technique, wherever possible, of self-evaluation, taking the form of a focused narrative about the actual material produced by the interviewee[6] (documentation, in our case). In addition to the apprentices, we chose also to focus attention on the other actors directly involved in the activity, that is the teachers, practical assistants and family members, again using *ad hoc* interviews. The interviews were analysed using the techniques of content analysis and conversation analysis[7]. The analyses clearly revealed the common threads in the execution of the activity in question, and have served to highlight the development of processes of learning as the activity evolved.

4.Data analysis

As regards the execution of the practical activity, what really happened?[8] Let's listen to the words of an apprentice[9]:

AM_1 (3-5; 8-10): "I made the mould […] I made the mould, yes, then I also took the clay and put it in the brick, I let it cook for a moment, it split in half, and that's it… I did it a couple of times …then … [...] I took four lengths of wood… I put them together, I made… length about twelve, height perhaps four centimetres, and the brick came out… I made the whole brick… and then…length…[…] so, I tried the first time, the clay was hard and you have to wait such a long time…when I tried the first time, I made the brick like this, without making any mould… I put it in the oven…took it out, it broke into three, four pieces... I said, fine, I'll try to do what he said…I asked him how to make the brick, make hmm, perhaps I'll make the mould… so off I went… to the site, I made the mould… […] I soaked it, I put it…the anti … yes, the sheet you put in the oven…[…] I put it underneath so I could take the brick out…I pressed it, I put water on it, I spent loads of time on this as well…baked it, but even so, you know, it's a bit spoiled here and there…"

Using this typical text, we want first of all to highlight the way in which the apprentices described the process of brick making: by progressive enumeration of the activities undertaken, practically retracing the procedure mentally from the beginning whenever they wanted to add something new. This feature of the narration is symptomatic of the strategy used by the apprentices when actually making the bricks: progress through trial and error, adding or changing things in response to their practical experience. In fact, very few apprentices made their brick correctly on the first attempt: most of these made at least two bricks, and only after analysing the mistakes made on the first attempt did they successfully complete the activity. Proceeding by trial and error seems, though, to be a good strategy, in as much as, according to the apprentices, it enables one to learn a few things that might be useful in some future activity. And so the apprentice focuses on those elements that have to be, or could usefully be changed, a starting from a base constructed through such process.

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[6] The purpose of facing the interviewee, in our case the apprentice, with his/her own description was to retrace and focus the actions the subject took to achieve the final result, hence reconstructing the entire process.

[7] See Galimberti et al., *La conversazione* (Milano: Guerini e Associati, 1992).

[8] Because of limited space, it is not possible here to re-present the quantitative data tables relating to the interviews and document analysis; we therefore focus on some qualitative data, which we believe serve to illustrate what emerged from the quantitative analysis.

[9] In the interests of anonymity, we have replaced the names of the individuals concerned with the following identifiers:
AM_n Apprentice in the Mendrisio Technical College
AS_n Apprentice in the Samedan Technical College
Int Interviewer.

We would like to end this reflection with a quote from an apprentice, which we consider particularly apt in this context: *AS_3 (87)* "yes, yes, you can learn by trying!".

But we should not forget the context in which the activity took place, that is the distance learning situation, a context that, as we have mentioned earlier, itself constitutes part of the activity and of the learning process. If we look at the educational tool as a resource available to the apprentice, we cannot fail to note how this might itself have influenced the identification of possible available resources. Some apprentices did indeed take advantage of the resources available to them through the VLE[10], but the resource possibilities that were identified were wider than this, and were not necessarily confined to the electronic medium. Firstly, the ability to call on peers and teacher for help when in need, but also the involvement of the family (particularly for those whose fathers were bricklayers), and finally those resources that traditionally form part of the territory (employer, but also the local brick making factory)[11]. Working outside the classroom seems to have had a positive influence on the ability of the apprentices to use resources that they would not normally consider, almost to identify a new environment – resulting from the integration of the real and the virtual – which they can access and in which they can move autonomously. Paradoxically, the opportunity to work in a new virtual dimension and to be able to take advantage of its potential seems rather to have encouraged the discovery of all those resources normally taken for granted because they form part of daily experience.

Let us now change our focus of observation, to look at the differences between working at a distance and working face to face. We want to highlight first of all how distance enabled the apprentices to develop autonomous modes of working: both as regards the content of their tasks, which they had to deal with entirely on their own, and in terms of the freedom to organise themselves in response to their own needs, and finally in relation to the possibility of retracing the same steps until the objective was reached. However, if working at a distance seems on the one hand more effectively to develop autonomy of thought and management of action compared with working face to face, it cannot, on the other hand, in any way substitute for *seeing* and being able to *ask directly*, which are characteristic of the face-to-face mode. Even so, we should emphasise that for the apprentices "presence" is not associated with the classroom but rather with the workplace; school is in fact perceived as a place in which it is not possible to get down to the practicalities of the profession (the *seeing* and the *asking* that we have mentioned earlier), but is again perceived, as is the VLE, as a place for theory. In this context, then, "presence" and "distance" mean very different things: "presence" is seen as offering the chance to launch immediately[12] into practical activity and to get "hands on", while "distance" is seen as a kind of "psychological distancing" into the world of theory.

As regards documenting their activity, the apprentices openly admitted tailoring their account to suit the particular interviewer, in this case the teacher. Thus their description used specialist language, shared only by members of the group (bricklayers), but most importantly there was no need to enter into detail. When faced with describing the procedure to a non-specialist,

[10] We note briefly here that reference to the VLE was conspicuously absent throughout this study, which is remarkable considering the periods of distance learning which are a characteristic of the project. In effect, the VLE, which by definition should be the common user environment *par excellence*, was used by the apprentices essentially as a receptacle for depositing and retrieving information, much like an ordinary forum or bulletin board.

[11] Of all the individuals involved in the learning process, it is interesting to note that the Practical Assistants feature not at all in the apprentices' frame of reference, even though it is their task to help their pupils to acquire theoretical concepts and learn to translate these into practice.

[12] We use the term "immediate" here in its original sense of "non-mediated".

someone not in the field, the apprentices would modify their accounts, firstly describing their actions in much more detail, including photographs, and secondly adapting their terminology, simplifying the language as much as possible. It is clear, then, that apprentices were able to define the characteristics of their interviewers and to adapt their language for them.

We return now to the question that gave rise originally to our research: has this activity effectively facilitated the translation of knowledge acquired theoretically into practical situations? On the basis of what emerged in the interviews with the apprentices, we can state that the practical activity did not in itself appear to activate the process of applying specific theoretical knowledge to practice. We should however note that the transfer process, according to the apprentices themselves, can be triggered by other forms of competence which, while they may not be directly related to their particular profession, nonetheless represent a range of abilities necessary for the workplace. The apprentices attributed particular importance to the acquisition of abilities involving autonomous activity management and related issues, which are readily transferable to analogous situations such as, for example, a new task assigned by the supervisor with no explanation of the procedures to be used[13].

5.Conclusions

The experience we have described illustrates how the translation of theory into practice cannot be considered an immediate and linear process. On the contrary, such translation is strongly dependent on the individual, on the context in which the individual is placed, and on the challenges the individual is faced with. The apprentices' continuing need to retrace their steps to identify mistakes and possible solutions, and the constant process of trial and error, highlight how, even when possessing the necessary knowledge, its application to practice requires an ongoing and progressive adjustment[14]. It above all illustrates how we cannot in fact refer just to a simple transposition of learned ideas into practice, but that we are rather dealing with a complex system in which theory and action influence each other reciprocally and together form a whole that cannot easily be separated.

The linearity can be identified *a posteriori*, from the description of the process followed, but not at the time it occurs; and during the narration, as we have seen, the subject does not sequence the steps in an ordered way, but retraces the actions and only progressively organises them linearly. If on the one hand these results appear to confirm how the transfer of theory into practice often does not proceed through the simple application of prior knowledge, they also show how the only apparent split between theory and practice may be reconsolidated after the event through the reconstruction of action based on reflection on the activities themselves.

Working at a distance leads, moreover, to the emergence of a whole series of new elements, first among them the emergence of new skills developed through working autonomously, skills that are useful not only within the narrow confines of the activity itself but that are applicable more generally within professional practice. We should not, however, ignore the effects that at first sight appear secondary, but which actually impact significantly on everyday practice; we refer here in particular to the remarks made earlier about the importance that the presence/distance dichotomy assumes in the specific context of vocational education.

Finally, in a distance situation other individuals – who might be a classmate but also some other outside figure – seem to assume more importance than in the traditional face to face situation.

[13] The example is taken from the account of one of the apprentices.
[14] Here we follow Schön (1993), according to whom thought and action are neither separable nor opposed.

In effect, whereas in the classroom the only other person is the teacher, implicitly the only recipient of completed assignments, distance seems to completely change the perception of the context and allows other figures to emerge that are normally in shadow. The need, acknowledged by the apprentices, to use a different approach when describing their work when faced with someone not in the field highlights how they have a new perception of the context to which they belong. In other words, the distance education situation appears to encourage explicit recognition that "it depends who I'm talking to", as soon as the subject ventures outside the default context. This in turn also involves a more or less conscious awareness of the characteristics of the interlocutor, accompanied by appropriate linguistic modifications depending on the person being addressed.

Another consideration that arises from this has to do with the sense of belonging to a particular community. As long as apprentices feel no need to make themselves understood other than to their teacher and peers, they can rely on a common language, and the community to which they belong (in this case the community of "bricklayers") is not in question. As soon however as they have to make themselves understood to others, they become aware not just of the wider context in which they need to operate, but also, at the same time, of the restricted community which, until that moment, completely circumscribed their training activities. Working at a distance, involving as it does "different" entities[15], seems then to cast a new light on the context in which their training takes place, and to bring out the need to employ skills, like, for example, modification of language depending on the interlocutor, of which they were previously unaware.

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[15] In reality, with the exception of the PA-CmC, the people involved were always a part of the of the lives of the apprentices; the change we are referring to concerns the image that the apprentices themselves have of them, perceiving them more or less as participants in their own learning activity.

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Plotting Virtuality: dimensions of eLearning space

Peter J Williams

Abstract: The term *eLearning* enjoys wide currency, but is loosely employed. A lack of clarity as to its nature accompanies a lack of understanding as to its applications and appropriate use. These are important issues, as political, educational and commercial policy-makers need an informed frame of reference from which to make decisions regarding the employment of eLearning alongside or in the place of existing methods of education and training. There is also a need for accurate description of eLearning products for the clients who might use them. This paper seeks to provide contextual and internal analyses of eLearning as an initial stage in the process of creating such a frame of reference. Firstly, eLearning is located within a variety of education and training contexts so as to delineate its boundaries, and an overview is made of ways in which it is employed at higher education level within private, corporate and state-funded systems. Secondly, earlier conceptual models for eLearning are examined and a model is proposed comprising four dimensions of virtual space: *course utility, study flexibility, delivery technology* and *learning paradigm*. A graphical representation of the dimensional model is used to profile the different contexts for eLearning explored earlier; this method of visualisation affords ready comparison of the variety of ways in which eLearning is employed. Thirdly, a rationale is advanced for these dimensions, which are then discussed in relation to typical learning activities. Finally, consideration is given to how the dimensional model might be applied in the areas of learner appeal, course marketing, educational systems design and course quality evaluation.

Keywords: eLearning, theoretical model

1. Contextualising eLearning

For the purposes of this paper, eLearning is defined contextually as embracing a variety of methods and practices in education and training in which electronic systems are employed. Usually – but not necessarily – this includes communication online: between learners and between learners and tutors. The territory is a large one, extending from the training of vocational skills in commercial and corporate environments to the study of traditional arts and humanities in universities; moreover, the territory is expanding. The Department for Education and Skills for England and Wales has declared eLearning aims for schools together with financial incentives and an infrastructure[1]. At the higher education level there was substantial government funding for a UK eUniversity[2] and, at the time of writing, a draft consultation document defining a national eLearning policy for further and higher education[3].

However, according to Drucker[4], traditional universities are in deep crisis and we should not expect to see campuses in their present form in thirty years' time. Crisis is a term used by many commentators to describe how eLearning in its various forms is associated with impacts upon traditional values and practice in higher education (HE)[5]. Figure 1 summarises a number of economic, technological and political drivers. British universities no longer enjoy what Hague described as a cartel arrangement with the state funding body[6], and now have to face a burgeoning demand – against a falling unit of resource – for increasingly vocational courses related to the information economy; and all this while in competition with each other in national and international markets[7] in which HE is becoming commodified and branded[8].

Some applications of eLearning include support for the *mega-universities*[9] and *virtual universities,* which are entirely online. The economies of scale and infrastructure afforded by these means of delivery seem an attractive 'techno-scientific' solution[10] to the managerialism which has taken hold of national and institutional policy-makers[11]. Not yet in direct competition with state-funded higher education are the *corporate universities*, developing considerable experience in the development of eLearning materials for vocational purposes, and likely to become a threat to universities in the near future[12].

The emerging technology of *learning objects* extends opportunities for eLearning and could further undermine traditional HE. The disaggregation of learning materials into standardised 'bite-sized' pieces and their storage in semantically-indexed and meta-tagged repositories[13] enables new combinations to be assembled to meet the needs of individual learners, as assessed by intelligent profiling software[14]. Stephenson envisages that:

> Courses, as organizing structures for learning – with fixed syllabi, predetermined outcomes and assessments, and strictly timetabled activities imposed by programme managers – will give way to frameworks or shells of support materials surrounding loosely defined fields of study, generalized outcomes and activities pursued by the learners.[15]

These possibilities for *learner-managed learning* bear interesting similarity to postmodernist predictions of the demise of traditional campus universities as part of a wider rejection of cultural heritage, and which see the new digital media as playing a key role in this overthrow. Lister *et al*. describe digital media in "…a sense of being the technological correlative of postmodern thought. Speed, flexibility, digitality, hypertextuality have all been posited as characteristic of new media and of postmodernity" [16]. This 'techno-romantic futurism' is also evident in the views of Raschke, who talks of *hyperlearning* as being "not so much about the command of established, educational 'content' as about the capacity to birth new content. ... The internet is not just another resource for learning. It is fast becoming the incubator of knowledge." [17]

2. Earlier conceptual models for eLearning

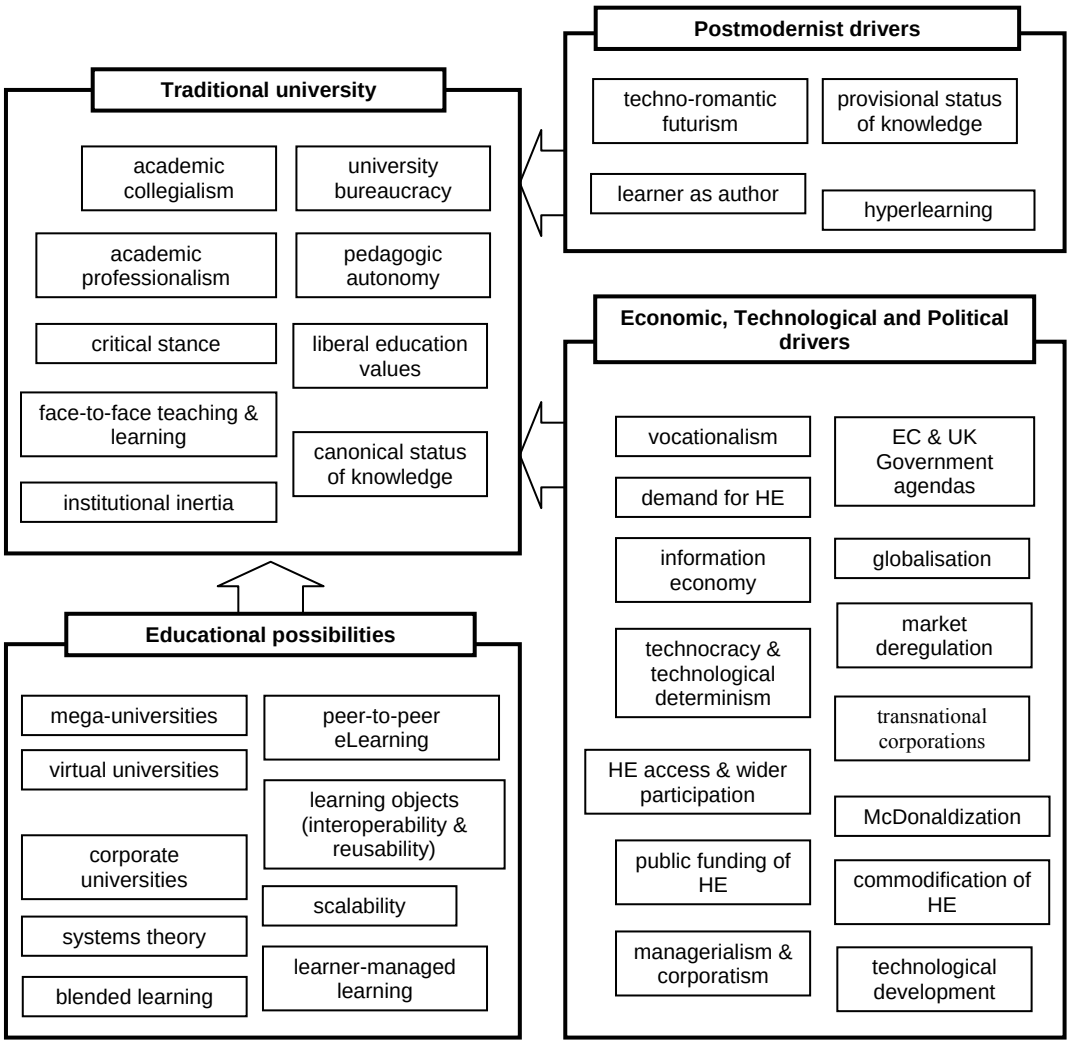
An early typology of teaching approaches in regard of distance education was advanced in 1987 by Boot and Hodgson. This identified two pedagogic orientations on the basis of a commitment to constructionist principles[18]. *Dissemination/Instructional* and *Development/Constructionist* orientations were contrasted in terms of, *inter alia*, teaching assumptions made about knowledge, learning, the purpose of education, the tutor's role, course structure and the nature of assessment. While this model identified some key issues, it was essentially a broad typology from the perspective of the teacher rather than the learner. Also, it was *delivery-independent*, and could have been applied equally to face-to-face as to distance teaching; and – in 1987 – it was pre- World Wide Web.

A more recent model, and one created specifically for Web-based learning & teaching, is the *Online Paradigm Grid* devised by Coomey and Stephenson in 2001 and presented in Figure 2.

The authors undertook an analysis of one hundred published accounts of Web-based learning & teaching, and from this identified four common features: *dialogue, involvement, support* and *control*. They note that

Most ‘lessons learnt’ focused on the importance of structuring the learning activity and designing the materials in order to promote dialogue, secure active involvement of the learner, provide personal or other support and feedback and enable the learner to exercise the degree of control expected. [19]

Figure 1 – eLearning Contexts



These four features were then related to each of the quadrants of the *Online Paradigm Grid*, resulting in rich descriptions of the four paradigms; in addition an advice list was generated for each paradigm on the basis of the 'lessons learnt'. The north-west quadrant proved to be the most populated, as this most resembles traditional face-to-face teaching and requires the least amount of reworking of existing methods and materials for use in the online environment; the south-east quadrant was the least populated, for opposite reasons. The authors stress the importance for materials designers to have detailed awareness of the characteristics of their chosen course paradigm, warning that *"Students used to clear instructions and narrowly-defined tasks, for instance, will need considerable help with online learning in any sector other than the north west."* (*ibid.*)

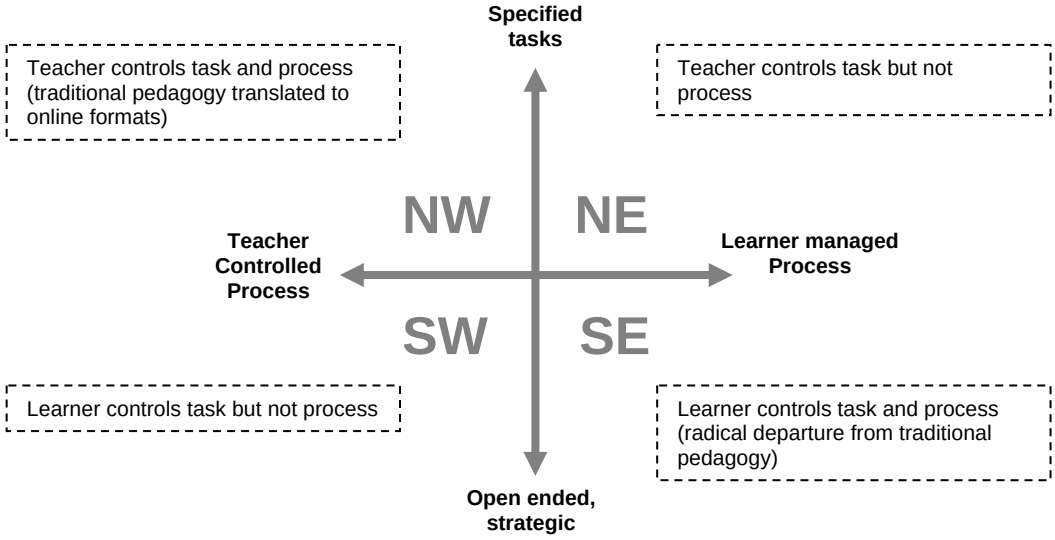


Figure 2 – Online Paradigm Grid
Adapted from Coomey and Stephenson[19]

Coomey and Stephenson's model has many strengths. It differs from Boot and Hodgson's, in giving some consideration to the learner's as well as the teacher's perspective – although these are not explicitly related to an epistemic educational stance – and it is *purpose-independent*, where Boot & Hodgson do consider practical relevance and course utility. Like Boot & Hodgson's model, it is delivery-independent in that it also could be applied to wholly face-to-face courses. Neither model takes account of the variety of preferred learning styles which students might adopt. For example, in the continuum model of cognitive styles devised in 1977 by Witkin *et al*, learners range from *field-independent*: serialists / splitters / 'logical theorists' to, at the other end, *field-dependent*: holists / lumpers/ 'imaginative divergers'.

Given the rapid take-up and shifting sands of eLearning, the greater commodification and branding of learning resources and the signs of a growth in learner-managed learning, there is a continual need for the academic community to review and revise its conceptual models. It is important to maintain an informed and up-to-date frame of reference from which policy-makers in political, educational and commercial milieux can make effective decisions about whether and in what forms eLearning might be appropriate. Potential customers in the new eLearning market also need clear and reliable advice about not only content, but also the methods and modes of delivery of the products they might buy.

3. A proposed four-dimensional model

The model proposed here is oriented towards the learner's perspective, so stands in contrast to the two described above. It consists of four dimensions of virtual space: *course utility, study flexibility, delivery technology* and *learning paradigm*. Each is conceived as independent of the others, comprises three strands and is represented on a four-point scale.

Course Utility (Table 1) is concerned essentially with the 'entry ticket' that utilitarian courses provide to enable students to attain extrinsic goals (*e.g.* vocational qualifications leading to better-paid jobs) and relate to students' general orientations to education[20]. At the '0' end of the scale is the type of liberal arts course in which the important outcomes are experiential

rather than extrinsic. Between these extremes is, for example, a degree course undertaken out of personal interest, but which carries some vocational credit.

Table 1 – Course Utility (CU)

strand	-0-	-1- -2-	-3-
purpose	'liberal education'	*e.g.* traditional arts or humanities degree	vocational, utilitarian
outcome	intrinsic, experiential		extrinsic, transferable
assessment	credit accumulation unimportant		credit accumulation crucially important

Study Flexibility (Table 2) comprises three indicators of the overall flexibility of a course. At the '3' end of *materials and sources* would be Stephenson's "*frameworks or shells of support materials surrounding loosely defined fields of study"* discussed above. The *tasks* strand is the same as the vertical dimension of the *Online Paradigm Grid*.

Table 2 – Study Flexibility (SF)

strand	-0-	-1- -2-	-3-
materials and sources	predetermined, tightly-defined	sharing some of the components of 0 and 3	indicative, loosely-defined
scheduling	lockstep, sequential		flexible, variable
tasks	specified		open-ended, strategic

Delivery Technology (Table 3) considers the types of eLearning activities from the learner's perspective: from a computer-centred type of course to one in which there is a high degree of face-to-face interaction with teachers and peers. The intermediate blended learning category shares components from both extremes of the dimension.

Table 3 – Delivery Technology (DT)

strand	-0-	-1- -2-	-3-
media	technology-supported face-to-face learning	blended learning	online only
communication	technology-supported face-to-face		online, asynchronous
support	face-to-face only		online only

Learning Paradigm (Table 4) includes the *control* strand, which is the same as the horizontal dimension of the *Online Paradigm Grid*; however, it is broader than this. *Interaction stance* incorporates the notion of hyperlearning and intensive peer interaction, which relate also to an active constructionist orientation. *Cognitive style* is an important descriptor for potential course clients seeking activities to match their own preferred learning orientations.

Table 4 – Learning Paradigm (LP)

strand	-0-	-1- -2-	-3-
interaction stance	passively receiving 'accepted wisdom'	sharing some	contributing actively and collaboratively

		of the components of 0 and 3	to new knowledge
cognitive style	field-independent		field-dependent
control	teacher controlled		learner managed

The four-point scales are now employed to compare different applications of eLearning. For the sake of illustration three hypothetical scenarios have been categorised. The first – called *blended* – is an example of technology-supported learning within a traditional university in which a virtual learning environment is used to follow up activities initiated in conventional lead lectures. The second – called *corporate* – describes a vocational training course delivered by a corporate university to moderately-skilled employees to train them in new work procedures. The third – called *active* – is not a formal course but an ongoing process of research and development undertaken by a group of 'blue sky' researchers based in universities across three continents and communicating through a variety of sophisticated technologies. Table 5 shows how these have been rated according to the four-dimensional model; Figure 3 presents this data in a graphical form in which the profiles of the three scenarios may be more readily compared.

Table 5 – Comparison of Scenarios

Scenario	CU	SF	DT	LP
Blended: technology-supported face-to-face module in a traditional university	2	0	0	2
Corporate: vocational training in a corporate university	3	1	3	0
Active: flexible and collaborative learning by a globally-distributed research group	1	3	3	3

The model appears an attractive and simple way to summarise and relate the complexities of the many different purposes and implementations of eLearning. However, much needs to be done in moving from this initial conceptual model to a workable inventory which might be applied in practice. For example, the extent to which the four-point scales are true *ordinal* measures as distinct from *nominal* ones needs elucidation. For the purposes of graphical representation this is not a crucial issue; what is more important is that each point-category is supported by valid and reliable descriptors. An empirical grounding is needed in order to construct each of the four dimensions in terms of current and emerging practice; in this way, the inventory could be both a discriminating instrument and a close reflection of praxis.

4. Employing the eLearning model

If it proves possible to develop a workable inventory then the model has the potential to present – from the standpoint of the learner – a more finely-grained summary description of an eLearning course than the earlier models described above. What a potential client might want to know in comparing different types of eLearning courses is answers to questions such as:

- is this course going to be useful for my career? (CU)
- will I have the time to fit it in? (SF)
- have I got the necessary technological access and skills? (DT)
- will it suit the way I like to learn? (LP).

The simplicity of the model could also be effective in helping to convey to policy-makers the idea that eLearning is not a unitary entity which can be simply 'bolted on' to existing forms

of education and training, and that detailed decisions need to be made about which types and styles of teaching and learning should be adopted. In this situation, policy-makers might ask:

- is there a market for my course? (CU)
- will it be practically feasible for my target clients? (SF)
- will they have the necessary technological access and skills? (DT)
- will it appeal to the variety of their preferred learning styles? (LP).

Similarly, educational systems designers could find use for the model to inform their decision-making process. It might best be used alongside existing instruments for content and course needs analysis and the profiling of target learners[21].

Finally, the model could be of service in the course validation and quality assurance process. Here, there may be a need for non-specialist and 'lay assessors' to appreciate that eLearning courses should not be judged with the same criteria and expectations as conventional courses (for example, the issues of study flexibility (SF) and delivery technology (DT) are much more significant).

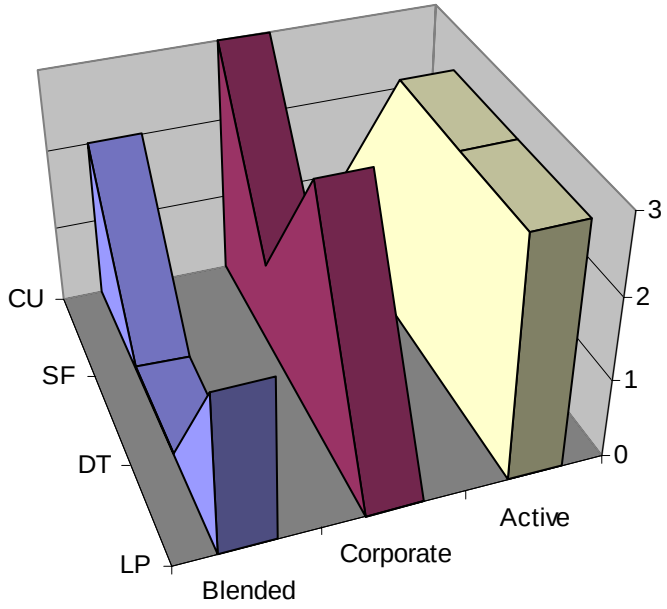


Figure 3 – Profile Comparison of Blended, Corporate and Active Scenarios

5. Conclusion

This paper has identified the need for an up-to-date and accurate conceptual model for eLearning. Existing models have been analysed and a possibly more appropriate and practicable model has been proposed. Although very much at the prototype stage, this model has the potential for development into a detailed and workable instrument which could be of benefit to all participants in this increasingly important aspect of education and training.

Notes

1. Aims for the use of ICT and eLearning in schools are set out in the Department for Education and Skills documents *Transforming the Way We Learn* (2002) and *Fulfilling the Potential: Transforming teaching and learning through ICT in schools* (2003). Free eLearning credits for the purchase of DfES-recommended educational software are issued to schools through the Curriculum Online scheme.
2. The UK eUniversity (UKeU) was created in 2001 in an attempt to compete with private virtual universities for the burgeoning business education market in South Asia. It has subsequently ceased trading and was put up for sale in 2004.
3. Key outcomes of the Department for Education and Skills consultation process led by *Towards a Unified e-Learning Strategy* are currently under implementation.
4. Peter Drucker has written extensively on the difficulties of organisational adaptation to the pressures of the information economy.
5. For example: Preston, 2001; Hayward and Hedge, 2002; Raschke, 2003.
6. In *Beyond Universities*, Douglas Hague argues that British higher education institutions should be able to survive both as competitors and complements of the knowledge industries.
7. Trinidade has written extensively on transnational aspects of online learning.
8. In Ritzer's book *The McDonaldization of Society*, online learning is identified as a 'McDonaldizing' force in higher education.

9. In *Mega-universities and Knowledge Media* John Daniel defines 'mega-universities' as distance education institutions of over 100,000 students.
10. Managerialist issues in higher education are examined in David Seth Preston's *Virtual Values: The University in E-Crisis.*
11. These matters receive extensive commentary by Neave, 1988, and Clarke and Newman, 1997.
12. See Prince and Beaver's examination of the move from collegiate to corporate values in higher education.
13. These ideas are detailed in the CETIS website (Centre for Educational Technology Interoperability Standards).
14. For example, Dickinson and Stewart, 2001.
15. In *Teaching and Learning Online: pedagogies for new technologies*, p.223.
16. In *New Media: A Critical Introduction*, p.192.
17. In *The Digital Revolution and the Coming of the Postmodern University,* p.38.
18. Constructionism is explained in Tenenbaum *et al*., 2001.
19. Coomey and Stephenson, 2001, pp.40-41.
20. In *Improving Your Students' Learning: Reflections on the Experience of Study,* Alistair Morgan identifies students' general orientation to education as a major factor in their subsequent success.
21. These issues are examined in depth in the books by Terry Evans and David Rowntree (1994).

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The Challenge of the Paperless Thesis: Issues in the Implementation of a Regime of Electronic Theses and Dissertations

William W. Bostock

Although the paperless university is still quite some way off, the paperless thesis is already a reality and it is time to assess the challenge that the paperless thesis presents to universities, academics and thesis writers, and review progress in implementation to the present.

The concept of the thesis or dissertation

> "The thesis is the document which best represents the research and teaching activities of the university. It is also that which distinguishes the university from other places of teaching."[1]

The 1990's have seen the development of the professional doctorate in addition to the tradititional Ph.D., in universities throughout the English-speaking world. They include the Doctor of Education (EdD), Doctor of Nursing (DN), Doctor of Social Work (DSW) and Doctor of Business Administration (DBA). The professional doctorates generally require a written thesis and a practical thesis, which could be a videotape or CD-Rom.[2]

Thus, the essential requirement of a higher degree remains wholly or partially the thesis or dissertation, a substantial written document presented for examination by experts at the end of a higher degree program. Sometimes a distinction is made between a *thesis* or idea and a *dissertation* as a document[3], but generally, in Northern American usage, *thesis* refers to the document required for a master's degree and *dissertation* to that for a doctoral degree, while in Australia, New Zealand and the United Kingdom and most other countries, the word *thesis* is used to refer to the document submitted for either degree and also the Honours level of the bachelor's degree.

In some disciplines such as Fine Art and Music, the PhD thesis may include other formats of material such as works of art, craft and design, compositions, recordings of performances and even performances and exhibitions themselves. These will be supported by a written document contextualising and explaining the body of work presented.

The significance of the thesis

One view of the thesis is that it should be publishable as a test of entry into the academic profession, while another view is that the thesis is the 'last important *exercise* that students will do in their graduate career'.[4] At the basis of this difference of view is a presupposition about personal maturity, specifically that the candidate has reached full personal maturity.[5] The growing demand for professional doctorates has added impetus to calls for diversification of thesis presentation, as, for example, in the case of clinical skills that cannot adequately be reflected in a written thesis. The creation of professional doctorates is not only recognition of demand but also a widening of the definition of concepts of research to take in a wider range of issues, many of which require treatment in a form other than the written document. They also allow for a wider range of people to be involved in research work,[6] which is another important impulse towards implementation of a new regime of thesis presentation.

Thus the thesis or dissertation, produced at the end of a period of study and research, remains the essential requirement of a higher degree, but its form and content have greatly changed since the 1990's, creating new challenges in which the electronic presentation of theses and dissertations can play a major role.

Motivations towards the paperless thesis

The electronic submission and archiving of theses and dissertations has "…the potential to extend the work of the academy more deeply into the public sphere."[7] In addition the development of the World Wide Web, which allows information to be shared over the Internet, the electronic thesis has enabled multi-media presentation of material as text graphics, animation and sound, in an integrated way. Until the mid 1990's, multimedia applications were uncommon due to the cost of the hardware required, but now nearly all personal computers (PC's) are capable of displaying video, as well as style sheets, linked Excel tables, animated menus, image maps,

sound files and colour-coded indexes allowing information to be organized in non-linear ways.[8] However, because of the storage demands of multimedia applications, the most effective medium is the CD-Rom, thus providing a convenient physical unit for the library storage and use of a thesis, that can now moreover easily include a practical component.

There is also the possibility of hypertext links, which enormously expand the amount of information referenced in the main text. These new types of information display can be easily embodied in the work, so that interpretive capability which functions by making connections, is greatly enhanced.

As the author of one electronic thesis wrote

> "Hypermedia documents consist of a bricolage of 'modes', blocks of text, sounds and images composed, and to be read, in no specific order. In contrast to conventional texts (and perhaps especially conventional PhD theses), there is no linear sequence in which a hypermedia documents pages are meant to be read and understood". [9]

If the paperless thesis is posted on the Web, comments by readers can be received and also posted, while the potential readership expands from possibly only several people (examiners), to a readership of potentially millions, thus extending the mission of the universities in a way completely in conformity with postmodern thinking. In contrast with earlier times when traditional print theses and dissertation would average only a few request a year, some are now reported to be downloaded thousands of times.

Issues confronting the paperless thesis

The most frequently raised issue is intellectual property: does the posting of a thesis or dissertation on the Web constitute prior publication, thus negating future publication by an established traditional publicity house or scholarly journal?

The publishing policies of commercial publishing houses is variable, but some universities, such as Florida State, remind students that it is their individual responsibility to seek input from publishers. Where material in an ETD is patentable or proprietary, students are advised to elect for the 'No Access' option available in most Digital Libraries. [10]

One implication of the digitising of theses and dissertations is the prospect of sale by commercial organisations. Since 1965 the National Library of Canada has archived theses and dissertations, and in the 1980s this was contracted out to UMI who subcontracted the use of thesis and dissertation material to Contentville, an American company owned by NBC, CDC and Microsoft. The Canadian Association of University Teachers and the Canadian Association of Graduate Students have protested at the sale of theses for profit on a commercial basis, an implication of the wider distribution and access.[11]

The second major issue is archival stability. Archivists have always had a willing capacity to work with a variety of media: stone, bark, paper, celluloid, magnetic and digital. The problem with digital materials is their short durability and in fact many significant losses have already occurred including the first electronic mail message of 1964, part of the U.S. census of 1960, and the satellite observations of Brazil taken in the 1970s.[12]

The technical issues are the fragility of the medium and the incompatibility of software and hardware, and are generally solved by periodic refreshment where information is migrated from one hardware/software configuration to another. "Backward compatibility" is rarely available because of cost. In addition to the problems of obsolescence and decay through "benign neglect" and the process of disappearance of Web sites, known as *link rot*, there is the problem of deliberate and accidental corruption through viral infection.

The technical problems are thus considerable, but are being solved by refreshment and critical fail-safe mechanisms, standardisation of formats, such as the Text Encoding Initiative (TEI), Computer Aided Design (CAD) and Geographic Information Systems (GIS), which are all initiatives under consideration by the International Standards Organization. These techniques require considerable inputs of resource, so that the technical problems are also organizational problems.

Many graduate students and librarians have legitimate concerns over the long-term stability and they reasonably ask whether the ETD will be accessible even 10 years in the future. Edward A. Fox of Virginia Tech has proposed that organizations such as UMI should be given some responsibility for technical sustainability. He also emphasises the need for the adoption of non-Proprietary Standards such as SGML, JPEG and VRML for the maintenance of ETDs. He has noted also that the problem of stability and sustainability is not exclusive to ETDs, but is a challenge to electronic journals and digital libraries and is therefore receiving wide attention.

Kirschenbaum and Fox also argue that the author of the ETD should "play a major role in responding to these archival challenges…"[13]

The effect on the traditional publishing industry must also be included in the assessment of the issues raised by ETDs. Many smaller university presses are marginal operations, and their continued existence could be put in question by the widespread availability of ETDs.

While many established academics may privately (or even publicly) admit that their thesis may have lacked maturity, the level of exposure created by publication on the Web may be a discouragement.

Apprehension at exposure on the Web may affect supervisors, examiners, schools and universities as well as candidates, and the possibility of access denial has been an important component in the protocols of EDTs that are emerging.

The paperless thesis is a reality, but qualitative research by the present author indicates considerable reluctance by academics, librarians and postgraduate students to replace the physically substantial gold embossed bound document printed on acid-free paper, with a tiny, shiny CD-Rom or whatever even smaller physical object that is soon to become available. There is also a realization, however, that the paperless thesis will become standard practice, as many administrators, some academics and some postgraduate students (particularly those in fields requiring multi-media presentation of their work), may strongly wish.

The process of transition will be influenced by the development of soundly based protocols which address the issues to the satisfaction of those considering involvement.

Protocols for the paperless thesis

The technical standards for ETDs are an issue that appears near to resolution. An international standard for books, document type definition, has been created by the International Standards Organisation (ISO 12083) and this presents a standardized general markup language (SGML) which has been refined to Extensible Markup Language (XML). XML allows a limitless number of DTDs but the needs of composition and archiving are different.[14] Another standard is that developed by the Text Encoding Initiative (TEI), which together with that of the ETD project of Virginia Tech, provides a choice of DTD. Each system has its particular qualities, and it is interesting to note that while the Australian Digital Thesis Program has selected and refined the ETD Virginia Tech DTD, Montreal University Press has selected the TEI Lite DTD as that which best responds to their needs.

The metastandards for ETDs are those proposed by the Dublin Core Metadata Initiative[15] which is a metadata element set intended to facilitate the composition and archiving of electronic resources.

There are already protocols in place designed to address the issue of access, one of the major concerns.

While the paperless thesis already exists and has many enthusiastic proponents among students and supervisors who rejoice in its multi-media capability and its worldwide capability of diffusion, the many grave issues confronting its development – forgone publication, excessive exposure and unwelcome attention, and archival stability – mean that its development is slow. The current development of excellent technical administrative and legal protocols will help this process but a large task of persuasion remains before the paperless thesis can become the standard regime.

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Notes

1. Stephen H. Spurr, *Academic Degree Structures: Innovative Approaches* (New York, St Louis, San Francisco, Dusseldorf, London, Sydney, Toronto, Mexico, Panama: McGraw Hill, 1970), 117.

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5. Olson and Drew, 56

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An Evaluation of an e-Learning Strategy: Watching the e-Learners Learn

Simon P. Bates and Judy Hardy

1. Introduction

Advances in communications technology over the past decade have permeated society to such an extent that it is not an exaggeration to say that the way in which we communicate with each other has radically altered. New students entering Higher Education carry with them increased expectations of how Computing and Information Technology (C&IT) could be used to enrich their learning experience. This in itself provides a powerful driver for HE to incorporate the tools and techniques of C&IT into its teaching programmes, and the incorporation of buzzwords such as "e-Learning" and "e-Teaching" into our everyday professional vocabulary illustrate that this is being widely embraced and actively developed. However, there is no doubt that there are tremendous overheads and a subsequent latency involved in this process, arising from many factors - both cultural and practical.

If one seeks to deploy an e-Learning strategy, practical considerations such as steep learning curves aside, what defines the strategy and - possibly more importantly - how does one evaluate and refine it? For all the time and effort spent pursuing the integration of C&IT developments into HE teaching, there appears to be very little direct assessment of the methodologies used.

An e-Learning strategy encompasses a wide variety of activities and resources. Oliver and Herrington[1] have described a range of strategies that have been used to develop and support online learning. These range from simply "putting lecture notes on the Web" to a fully-integrated Virtual Learning Environment to complement (but not necessarily replace) the more traditional methods of face-to-face teaching on-campus. Fry *et al*[2] have suggested that students' use of IT can be evaluated in terms of content, method, sequence and sociology (*i.e.* the organisational aspects of learning), the four building blocks of the ideal learning environment proposed by Collins *et al*.[3] Whatever the strategy adopted, a clearer picture of how students learn would be of tremendous assistance to course providers. It might enable us to provide tentative answers to general questions such as:

- How do the students actually utilise e-Learning materials?
- Does this change over the progression of the course?
- Do our perceptions of what we believe is valuable and useful map onto those of the students?
- Do what we perceive to be more challenging aspects of the course material receive more or less attention in an e-Learning environment?

This article aims to shed light on this problem through the context of an evaluation of e-Learning courseware, together with providing pointers towards answers to more generic questions such as those outlined above.

2. The course in more detail

The course on which we base our investigations is a 13 week second year course in Computer Simulation taught in the School of Physics at the University of Edinburgh.[4] It presents an introduction to the principles and practices of computer simulation via the Java programming language. The course attracts a diverse range of students following degree programmes across the range of scientific disciplines, from physicists to computer scientists, mathematicians and engineers. It is continually assessed and is split into two approximately equal portions; a relatively formal "lectures plus checkpoint assignment" taught component[†] followed by a more open-ended project assignment. Our investigations here relate only to the first "formal taught" part of the course. During this part, weekly lectures are augmented by two timetabled laboratory sessions where students work on a series of checkpoint exercises that tie in with the relevant lecture material. The lectures aim to teach the principles and constructs of the language, the laboratory sessions give the students the chance to put theory into practice.

The course is delivered via a blended learning approach. Students are given a paper course handbook containing a skeletal version of the lecture material, the checkpoints and example codes. In addition, they all have access to the course website which contains a *full* version of the course notes plus the checkpoint descriptions and all the example codes (which can be downloaded and experimented with).

Computer programming and simulation is an experiential activity; there is no substitute for sitting in front of a terminal and "doing it for yourself". It is therefore a challenging topic to try and teach to a diverse group of students. The cornerstone of our philosophy when designing the course was that:

- Students should produce applications from scratch (as opposed to "sewing" together code snippets or templates with their own relevant routines).

[†] The checkpoints are a set of assessed assignments, each of which is self-contained but builds on the expertise and code already developed.

- The example codes were designed to facilitate this, acting as a bridge between the theory (presented in "lectures" and "notes") and the practice (the assessed exercises).

The course contained over 60 example codes that exemplified particular constructs or ways of doing things, often similar to what we would ask of the students in the assessed exercises. In the results we present below, a clear picture emerges of how valuable the students find these examples, corroborating our original thinking.

3. Results and analysis

A. Breadth, depth and patterns of use

Students' usage of the website varied significantly over the duration of the course. Figure 1 shows the number of page visits as a function of the week of the course. On lecture/laboratory days the website received about 180 hits per day; these days are clearly identifiable as the major spikes on the chart. The secondary set of peaks (averaging 60 hits per day) correspond to a second weekly practical session. On weekdays when with no timetabled class there were about 30 hits per day, and somewhat less than 10 hits per day at weekends and over the vacation. However, 30% of all the visits to the web site were on days with no timetabled classes – a clear indication that students worked at a time that suited them, and that this is not necessarily during timetabled classes.

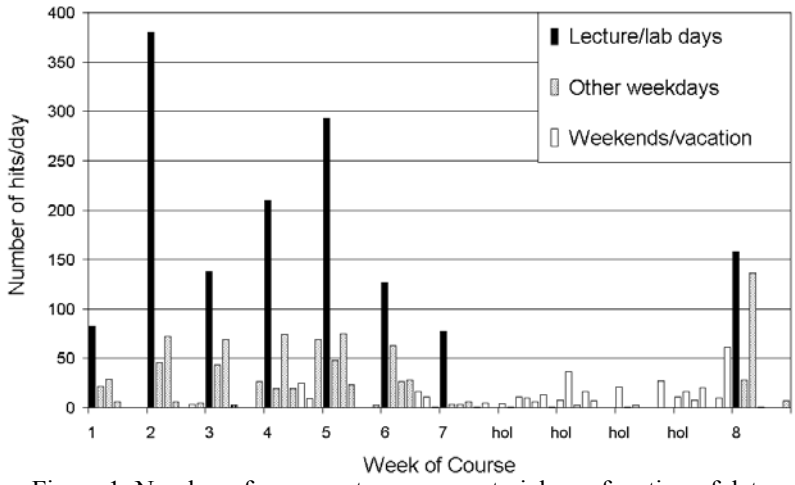

Figure 1: Number of accesses to course material as a function of date.

Further evidence for this comes from our analysis of the web site usage at different times of day, see Figure 2. This shows an approximately normal distribution centred around 2-3 pm, consistent with fact that laboratory classes are scheduled between 2 and 5 pm. There is a secondary peak of activity in the early evening between about 7-8 pm and a much smaller peak at around midnight. Although over 80% the accesses were during the normal working day, about 5% were between 11 pm and 7 am - in fact, the only time of day when no activity was recorded was between 5 and 6 am. This shows very clearly that not only do some students choose to work on days other than those with timetabled classes, but that they follow different work patterns over the course of the day.

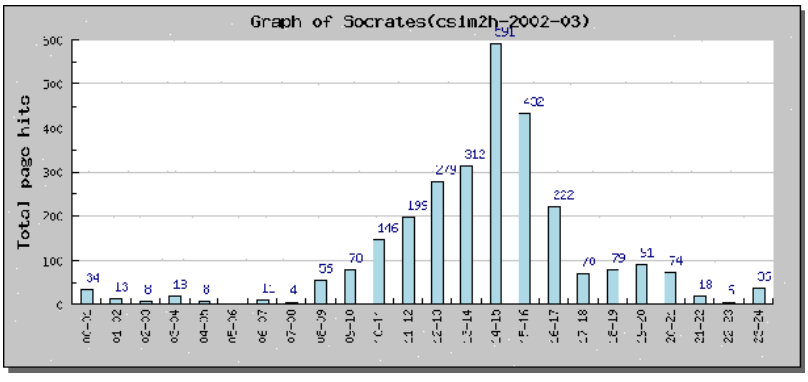

Figure 2: Number of accesses to course material over 24 hours

Some indication of the breadth of students' coverage of the material was obtained by looking at how many *different* pages were visited. Only 2 students looked at more than 50% of the pages on the web site, 18 students looked at between 25% and 50% and 7 students looked at less than 25%. Almost two-thirds of all the pages visited were example codes, with the remainder divided evenly between the lecture notes and checkpoints sections. This high usage level for the example codes may suggest that students do indeed find them useful to bridge the gap between the relatively high level overview presented in the lectures and the practical coding needed to complete the checkpoint exercises. Of course, on a purely practical level the online code examples are also probably used by students to "copy and paste" code to reduce the need for typing

B. Correlation with performance

Our understanding of "what makes a good student good" is somewhat limited even for the tried and tested practice of face to face contact via lectures, tutorials, workshops, practicals etc. The same is true of a student who under-performs, though here it is clear that non-attendance and / or lack of engagement with study materials is one possible cause of underperformance. This subsection attempts to investigate any correlations between performance on the course and usage of the online material. A preconception might be that good students who perform well on the course might be expected to use the material more, and vice versa for weaker students. We show in the following discussion that this is not necessarily the case.

Students were ranked according to assessed performance on the course, on the basis of marks obtained for the checkpoint exercises. We then randomly selected a representative number (typically 4) from the upper and lower quartiles; the former were designated "strong" performers and the latter "weak". In addition, a number of students were selected from the middle quartiles for cross-checking or validating any trends. At this point it is appropriate to reiterate the caveats regarding sample size. This is a small set of students, which we have just reduced to a much smaller subset for this investigation of correlation with performance. We steer well clear of concrete predictions and highlight possible trends.

On the basis of our analysis, we find no evidence that either group of students visit a greater proportion of course pages, nor spend more or less time in accessing the course. Both strong and weak groups were found to, on average, visit approximately 40% of the entire course, with a fairly narrow spread within the groups. This is consistent with the findings for the entire cohort.

General trends for the entire cohort in terms of number of hits and time spent per category of the course are also mirrored for both the strong and weak sub-groups. All students appeared to spend most time and visit most frequently the category devoted to code examples, and particular spikes of high activity in the whole class data (see Figure 1) were reproduced in both the strong and weak sub-groups of students.

In analysing both the times at which and frequency with which students visit the course material, we find a pattern for both sub-groups that again mirrors the entire cohort. In terms of number of visits as a function of time of day, we find the same bimodal distribution of use for students in both the strong and weak groups as was observed for the whole class cohort *i.e.* a smooth distribution, with peaks of activity in the afternoon and late evening. Interestingly, the vast majority of students that we examined *individually* exhibited this bimodal (or higher order) distribution, but with considerable variation in the peak locations. Typically, the larger peak was centred somewhere in the afternoon (the "traditional" time of the student day for laboratory-type activities) with a second peak somewhere in the late afternoon or evening, or even late into the night (3-4 am).

In summary, we conclude that there do not appear to be significant, consistent differences in the "on average" learning patterns of strong and weak students, i.e. inter-group differences. There is, unsurprisingly, substantial variation in the way different students in a given group use the material as individuals, i.e. intra-group differences, irrespective of which group they belong to.

C. Voting with their fingers

As teachers, we know that there are certain concepts or ideas which, on average, students find harder to master than others. We might approach our courses with certain preconceived ideas about what we think students will find more challenging than others. Our starting premise was that if students find a topic difficult, they are likely to use the online material more frequently and/or more often. Of course, this can also be true for the parts of the course they *enjoy* the most. We believe this to be particularly true for the code examples category of the course, and the data we present in the following paragraphs is drawn from this category.

At the start of the course the teaching team felt that the initial sections of the course contained a lot of material to get to grips with in a relatively short time and that one specific section was both conceptually difficult and somewhat clumsy and "dry". However, for each of these sections we found only an average number of hits and time spent on the code examples. Of course, it may still be the case that the students find these challenging or difficult and our premise of "more difficult equates to more hits" is simply false. Student questionnaires also suggested that they may learn to live with difficulties posed by challenging material relatively painlessly by using the code examples as a template for their own applications.

A clear picture did emerge of the section of the course that the students visited most frequently. The evidence presented below, together with that in the next section on looking ahead or back lead us to conclude that they also found this the most challenging as well. The section that students visited the most was that on introductory Graphical User Interface (GUI) programming, introduced in week 4 of the course. One third of the entire time spent on all the code examples was spent on this page alone. An identical pattern emerges for the number of accesses. This provides concrete evidence that this section is most frequently visited; the following investigation of usage patters over time strengthens the assertion that students did indeed find it the most challenging as well.

D. Usage patterns over time

Here, we investigate how closely students' usage of the web site followed the timetable of lectures and checkpoints. To do this, the number of hits in each of the three sections of the course were broken down according to whether the pages viewed related to the current weeks material, were "looking forwards" *i.e.* looking at material that had not yet been covered or were "looking backwards" *i.e.* looking at material that had already been covered in previous weeks. On average about half (48%) of the visits were to that weeks material, just over a third (37%) were looking backwards and 15% were looking forwards. This suggests that, although students spent most of their time studying the material required to complete that week's checkpoint, they also spent at least some time looking beyond this immediate objective.

This data also provides a further insight into which parts of the course students found challenging and interesting. For almost all of the students the GUI programming introduced in week 4 was their first introduction to the topic, and in order to complete the remaining checkpoints it was essential that they understood this material thoroughly. There were a large number of looking backwards visits in the following week, especially for the code examples. A more detailed analysis revealed that most students were revisiting the GUI code examples from week 4. This would seem to indicate that students were using a combination of "learning by example"[5] (using the code example as starting point) and experiential learning or "learning by doing"[6] (writing the program for the checkpoint) and provides evidence that providing a library of pertinent code examples does indeed facilitate student learning.

4. Conclusions and future directions

For the small-scale, specific course presented here, we can draw a number of tentative conclusions. It is clear that the pattern of students' usage of the online material did not simply follow the pattern of timetabled classes and that there was considerable variation in the way that different students used the web site. It is tempting to conclude that this implies a difference in *learning* patterns between students, but of course learning does not necessarily follow directly on from "browsing the web". Perhaps surprisingly, there appeared to be no correlation between students' usage of the online course and their performance in the course assessments, with wide variations in usage observed among both the low and high-achieving groups.

Our premise that the use of illustrative code examples facilitates learning by providing a bridge between the relatively high level theory presented in the lectures and the practical coding needed to complete the assessments is supported. We also identified one specific section in the course that students found especially challenging, and it was clear that students referred back to the code examples in this section at later stages in the course. This provides further evidence to support our belief that for this course, the code examples are key to the experiential learning style that fosters the deep learning [7] that is our aim as teachers.

E-learning has become increasingly central to the learning experience of students in the HE sector. As teachers we aim to make this experience as rewarding as possible, but it is often hard to assess how students actually use the material we provide and whether our preconceptions about what students find useful match the reality. In this study we have investigated the way that at a small group of students use the online materials offered as part one specific course. With such a small, specific study, our conclusions are necessarily speculative. However, the results are sufficiently encouraging that we plan to extend the study to a much larger, more mainstream course that is provided within a full VLE.

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Supporting non-native English-speaking students in an online postgraduate degree

David Catterick

Abstract

Language support for non-native English speaking (NNES) international students is well-established within English-medium higher education institutions. Based on his experience as both an international student and a lecturer in a UK university, De Vita[1] identifies a number of "key issues" which such support needs to address: metaphors and idiomatic expressions, discourse style, referencing, and cross-cultural small group interaction. With increasing numbers of NNES students joining online degree programmes, we need to ask whether the same provision that exists in face-to-face contexts is required in distance mode. An earlier study by the presenter began to address this question through a survey of online teaching staff (n=52). 84% of respondents indicated their belief that NNES students do have differentiated support needs. This paper will report on a collaborative project with the University of Sydney designed to test the validity of the previous study's findings. For this ethnographic study, the presenter acted as participant-observer for a student cohort on one of Australia's largest online graduate programmes. The author provided academic support as and when requested and categorised students' self-reported support needs. The paper summarises the findings and suggests how these might go some way to informing student support considerations.

Key words

support, non-native, online, international student,

1. Background

The increasing numbers of international students accessing higher education in British, Australasian and North American (BANA) countries (see table below) has brought an increased burden of care causing many institutions to now reassess their international student support provision.

Numbers of international students studying in country in higher education institutions.[2]

Country	Total number of international students	Annual increase
USA	582,996 (2002)	+6%
UK	255,000 (est. 2004)	+19.6%
Australia	115,000 (2003)	+15.5%

This growth in international student numbers is mirrored in the online arena. Students from Singapore and Malaysia studying for degrees in Australian universities by distance learning numbered 8,903 in 2003. This represents a 357% increase in Malaysian student numbers over the previous year[3]. In fact, in both the face-to-face and online teaching teachings, it is this continued growth in international student numbers that has brought the support needs of such students higher up the support agenda.

2. Introduction to the earlier study

In an earlier study[4], the views of distance learning practitioners were sought with regard to the support needs of non-native English speaking (NNES) international students. As part of the study, a review was conducted of the published literature on online student support and distance learning practitioners were individually contacted by e-mail to request their views on the topic. The literature review revealed very little overt reference to the needs of international students but where specific reference was evident, there appeared to be a three-way split of opinion. Some researchers reported very little difference in needs due to the nature of the language used while others acknowledged that differences do exist and that there needs to be further investigation into the exact causes[5,6]. A third group already recommended differentiated support[7,8] and considered it a vital part of the student support paradigm. The results of the survey (n=52) indicated that only 15.4% of respondents believed there to be no differences in learning support needs between NES and NNES students. Reasons given by these respondents fell into three broad categories;

- **any linguistic problems have been solved before a student joins an online degree programme**

- **NNES students are generally more highly motivated than their NES counterparts and so even out the differences**
- **the technology overcomes any difficulties (online education is still highly text-based which is less linguistically challenging)[9]**

Of the 69.2% who indicated that they believed NNESs to have differing support needs to NESs, many used statements which showed a high degree of certainty. The survey asked respondents to indicate where they felt the differences lay and the responses are summarised in the table below.

Areas of difference in support needs[10]

Language

Summary answer	Respondents
Non-specified	14
Difficulties with academic tasks (e.g. understanding assignments)	2
Difficulties with language skills (e.g. reading, listening, writing, grammar, vocabulary etc.)	8
Interlocutionary difficulties (e.g. lack of non-verbal clues, use of idioms / metaphors, different sociolinguistic context)	8
	Total: 32

Culture

Summary answer	Respondents
Non-specified	8
Differences in culturally inspired personality traits (e.g. deference to authority etc.)	3
Differences in processing of information among different cultures	3

Differences in academic culture (e.g. unfamiliarity with the group process ethos)	**11**
Lack of awareness of host culture (e.g. structure of the US legal system)	**1**
Tutor's lack of awareness of student's own cultural context	**1**
	Total: 27

Other

Summary answer	**Respondents**
Non-specified	**0**
Differences in learning objectives	**2**
Unfamiliarity with the technology used	**2**
	Total: 4

3. The University of Sydney Pain Management programme

Following on from the initial study, the researcher was invited to investigate in a collaborative arrangement with the Pain Management Research Centre at the University of Sydney the support needs of students in a fully online Masters degree. The Pain Management programme is one of the largest fully-online postgraduate programmes in Australia and one of the first postgraduate University courses in Pain Management to be offered worldwide. The programme is designed to provide;

> advanced education in pain for graduates in medicine, dentistry, psychology, nursing, physiotherapy, occupational therapy, and other relevant disciplines involved in the management of pain. [11]

Because of its relative uniqueness, the programme attracts dozens of international students from as far away as Europe, the Middle-East and Asia. In terms of student profile, these tend to be experienced medical practitioners with varying degrees of pain management experience but all studying part-time while continuing their work in hospitals or other medical institutions. Though the programme demands evidence of English equivalent to IELTS 6.5, the fact that medical and allied students typically require a high level of English when dealing with English-speaking patients means that we might expect that students on the programme are less likely than most postgraduate students to have difficulty functioning in a linguistically-demanding environment.

The programme is run in full distance mode using the WebCT™ virtual learning environment. The programme was awarded an exemplary practice award in 2002 by the WebCT™ company and students in the WebCT™ environment can access core reading texts, formative assessments using a series of flash animations and a discussion board for posting e-mail messages. A CD-Rom containing video footage of actual cases is sent to all students on registration. Summative assessment on the programme generally takes the form of written assignments, case studies, and critiques of published articles of approximately 2,000 words. These assessments are worth 80% of the final module grade with the remaining 20% awarded for the frequency – and we assume quality -- of postings to the discussion board. There is no synchronous element of the Pain Management course with no instruction or support provided using the WebCT chat function.

4. Methods and Results

To investigate the existence of support needs among the Pain Management students, a three stranded approach was adopted. The expectation was that the three strand approach with each strand using different methods would provide a certain degree of triangulation.

A. Strand 1: Support service

The researcher was given full access rights to the WebCT course materials and took on the role of observer-as-participant in an ethnographic study. The lead tutor notified all students that the researcher would provide on-demand academic study skills support for all students studying on the Pain Management programme. This was an open-ended invitation made to all students regardless of language background or student status offering assistance to students in whatever way they requested. Rather than receiving a steady stream of requests (as one might expect from such an invitation) there was only one response to the request from a NES Australian national who requested help with a module assignment. In the text of the e-mail the student explained the reason for approaching me;

> I am a nurse and have done lots of nursing study (no university degree or diploma, though) but this course is a step above what I have ever done before academically speaking. I can research and compile information but abstract writing is difficult for me. I am having trouble with this first essay. Could you find time to look at my draft perhaps?

In the same e-mail the student goes on to write;

> Was this a serious offer or are you groaning already? I do not want to impose.

A follow-up posting was placed on the discussion board verifying that the offer was indeed genuine and encouraging students to make use of the service. The student received assistance with the written assignment with discussion focusing on aspects such as organisation of information, referencing conventions and expression. A month later the student sent a follow-up e-mail saying that they had received a high grade and referring to the support received as "invaluable". Despite this gratifying response, there were no requests from other students for similar support.

B. Strand 2: Analysis of postings

The second strand of the investigation was an analysis of postings written by NNES students on the Pain Management discussion boards. As twenty percent of a student's summative assessment mark was based on postings to the discussion board, the discussion board was well used with each module containing two or three hundred postings running to many thousands of words of text. Using the WebCT™ search function, the postings written by NNES students were identified and analysed both in terms of frequency of posting and the linguistic features of each piece of text. There were three main observations from this analysis.

Observation 1: Frequency and function

Of the international student postings analysed, only two students posted with any great frequency and length. The fact that 20% of assessment marks are tied to online contributions suggests that as in many online learning contexts, non-participation or silence on the discussion board is viewed in much the same way as silence in the a face-to-face tutorial context – with suspicion[13]. Interestingly, many of the comments from students in the third phase of the investigation point to the value the students themselves place on the contributions. A further analysis of the overall function of the postings suggested that one of the reasons for the discrepancy in the frequency of posting could be the social function of some of the postings. A much less detailed contrastive analysis of NES postings in the same thread showed a predominantly social function in the discourse such as is evidenced in the two postings below.

Message no.
Author:
Date: Wednesday, July 28, 2004 6:01pm

Well I am assuming that you have now removed yourself from the clinical noose and decided to not jump!

My view is that chronic pain is an incredibly intricate and complex network of factors and even though we can't always assess 100% reliably, we do the best we can. I don't think that a range of blocks would necessarily solve all pain problems (much like surgery doesn't take away those Waddell non-organic signs), and so we aim to identify the psychosocial issues at play and address those.

Ok group hug guys....

Message no.
Author:
Date: Wednesday, July 28, 2004 6:38pm

Group hug!! - great idea Luke but what about the headlines:

"Pain management goes New Age"

Cheers

NES posting showing the social function of the discourse

Similar social interaction is largely absent in the majority of NNES discussion board postings analysed.

Observation 2: Grammatical accuracy

Another observation from the analysis of NNES postings is the grammatical accuracy of the text. Here an attempt was made to distinguish between simple typos or slips and errors that appear to be more systemic in origin. In the sample posting below written by a NNES on the programme, we see some of the grammatical inaccuracies evident in the writing. These are the types of errors which in academic writing would tend to set NNES writing apart from NES:

- Subject–verb agreement
- Pluralisation
- Capitalisation
- Punctuation
- Definite article

The issue in the posting below, though, is not the presence of grammatical errors in the text but rather the impact that such errors have on the reader and overall readability. In most electronic discourse there tends to be a general emphasis placed on comprehensibility rather than accuracy with a higher degree of tolerance of error existing in electronic rather than many other forms of written discourse. As this tends to be the norm rather than the exception even in academic discourse online, the grammatical errors evidenced here need to be assessed according to whether they impact on overall comprehensibility. A simple examination of the above posting leads us to the conclusion that though noticeable and perhaps even intrusive, the errors do not adversely affect overall readability.

Message no.
Author:
Date: Friday, June 4, 2004 12:04am

'fighting the disease' is when all available options are utilised to treat the patient even if the prognosis is poor. Patient and the familiy is encouraged to undergo these treatment. 'seeking peace' is finding comfort, ie, symptom control (pain management, managing side effects). In other words the patient will seek for a peaceful death and would refuse treatment.
This trend will see use of more opiates and less of interventional methods.

NNES posting showing evidence of grammatical inaccuracy

Observation 3: Resorting to plagiarism

The stylistic features of one NNES posting were in stark contrast to he other NNES postings analysed. Further analysis of the text revealed the rhythm of the text and the range of vocabulary and expression to have many native English features.

Message no.
Author:
Date: Sunday, May 2, 2004 10:55pm

Accupuncture is based on the theory of channels, which serve as pathways for qi energy. On the course of the channels, accupuncture points are described, and by stimulating these ponts practitioners may achieve therapeutic effects. This system is very complex as both the channels and the accupunture points are anatomically invisible. Accupuncture has become a widely used modality in various musculoskeletal pain conditions. Studies have shown that accupuncture increases blood flow in fibromyalgia patients. Accupunture treatment may be of value for some catergories of anxious patients with insomnia.

NNES posting revealing evidence of plagiarism

A quick search on Google™, revealed the original source of the text as a website on acupuncture.

As most source text for plagiarism is written by NESs, it is generally easier to identify when incorporated into NNES than NES writing. While studies have identified lack of confidence in the English language as a reason for resorting to plagiarism, it is certainly not the domain of NNES writing. One cause of plagiarism often cited in the literature is time pressure, a complaint referred to by a number of respondents in strand three. This would be at least as true for the NES as the NNES.

Strand 3: Student survey

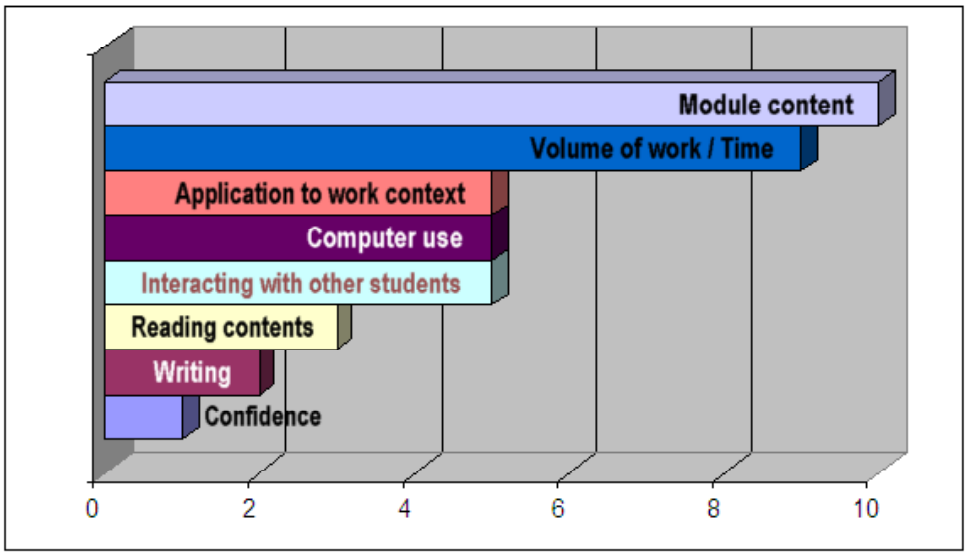
Where the earlier study had focused primarily on the views of the online tutors, the main focus of this follow-up study was the responses of a cohort of students themselves. A personalised e-mail questionnaire was sent to all registered and recently-graduated students on the Pain Management programme for whom there a current e-mail address was available (n=64). For basic demographic purposes, the students were asked to confirm their language status (Native speaker of English/Speaker of English as a Second or Other Language/Bilingual or Ambilingual speaker of English) and the number of modules they had already completed (1-16). They were then asked to identify the aspects of the programme that they found most challenging and a follow-up question asked what study assistance (if any) they would find/have found most useful.

The responses (n=21) to the demographic questions provided the following descriptive data showing a relatively even distribution in both language background (NES vs. NNES and bilingual) and time on the programme (number of modules completed).

Table showing responses to the demographic questions

Native English speaker				Non-native English speaker				Bi- or Ambi-lingual speaker			
n=12				n=5				n=4			
Modules completed				Modules completed				Modules completed			
1-4	5-8	9-12	13+	1-4	5-8	9-12	13+	1-4	5-8	9-12	13+
5	2	4	1	3	1	0	1	2	1	1	0

Responses to the question about the types of difficulties students felt they experienced with the programme were grouped by the researcher into eight themes.



Summary of responses to study difficulties

Difficulties in understanding the content of certain modules and the overall volume of work demanded by the programme were the two most reported themes. Reasons given for difficulties with the module content seemed to be connected with the students' varied clinical background given the fact that the student body is drawn from a wide variety of clinical contexts with differing degrees of exposure to content areas such as neurology or pharmacology. References to volume of work are also relatively easy to explain given the fact that the majority of students holding down full-time positions in medical institutions while simultaneously studying on the programme. This fact no doubt leads to the third theme, notably the difficulty applying the theories learned on the pain management programme to the student's own work context.

References to difficulties with computers ranged from a stated preference for working with paper and a pen to difficulties accessing online journal articles. Interacting with other students was explained in a variety of ways by different respondents. One respondent found it a challenge; interacting with a cross-section of professionals (i.e. different disciplines and sometimes different cultures) working in the pain management setting

Another respondent referred to her own "(required) contributions [as] facile and inadequate" compared with those of her peers while a third pointed to a general frustration recognising on the one hand how valuable the online discussions were but feeling on the other that their own contributions were limited because of relatively little experience. This student, a NES, was also responsible for the last theme, lack of confidence which seemed to affect almost every aspect of the student's studies on the programme.

As the focus of the investigation was on differing support needs of NES and NNES students, a correlation analysis of the results was undertaken. Perhaps not surprising given the relatively small sample size, there appears to be no correlation between language status or modules taken and any one of the themes identified. The relatively even distribution of the responses would therefore seem to suggest an equality of perceived needs among the student body.

Distribution of responses across language status and time on programme

	NES	NNES / BL	Modules taken			
			1-4	5-8	9-12	13-16
Module content	7	3	2	4	3	1
Volume of work / Time	4	5	4	3	0	2
Application to work context	3	2	3	1	1	0
Computer use	3	2	4	0	1	0
Interacting with other students	2	3	3	1	0	1
Reading contents	1	2	2	1	0	0
Writing	0	2	2	0	0	0
Confidence	1	0	1	0	0	0

The final survey question asked for the type of study assistance the student might find/have found useful. Many students seemed to understand the question to mean what general programme improvements should be considered rather than considering specific support interventions which might be initiated. Among those who did refer to specific support interventions (n=5), two areas of support need emerged.

1. Working through a real assignment so students know general expectations and can receive specific advice such as referencing
2. (Induction?) Assistance in the use of computer technology to become proficient in navigating the online learning environment and accessing online texts such as through the University library.

One student presented the need particularly clearly when he suggested that an individual tutor [be] allocated personally (who wasn't a professor and therefore perhaps too unapproachable for minor problems/questions) who would assist, mentor and actively contact me re: the study.

5. Discussion

The findings seem on the surface at least to contrast sharply with the main findings from the earlier survey of online tutors. Of those tutors in the earlier study who reported extensive experience of teaching NNES international students, a sizeable proportion (78.9%) indicated they believed there to be significant differences in support needs between NES and NNES in online study contexts. No such differences were observed in the current investigation among the students themselves with no individual support needs that could be ascribed to either group. There are a number of possible reasons for this discrepancy which will now be explored.

1. Tutors' lack of awareness of student support needs

One possible reason for the discrepancy is that the findings from the first study are flawed because the tutors surveyed are not well-acquainted with the support needs of their students. While this may seem unlikely in a face-to-face academic context with seminars and tutorials, in the distance education context where the student may never step foot on the campus and where evidence of progress may be based on e-mail interaction and assignments alone, some would argue this is a distinct possibility. While this initial explanation focuses on the tutor's awareness of the needs of individual students, it is of course possible that because the data gleaned from the survey was experiential rather than empirical, the tutors may be relying on anecdotal data or even responding according to their own internal stereotypes.

2. Methodological issues

A second possibility is that the present study is methodologically flawed. One factor is the small, essentially self-selected nature of the sample group. Though a 33% response rate for a survey is slightly above what is normally to be expected, the size of the sample population (n=64) is still small (though unavoidably so). A bigger issue perhaps is the fact that respondents are self-selected, choosing whether to respond to the request to take part in the study. It is conceivable, for instance, that some students may not have responded because they did not want to acknowledge their needs or because they are so overburdened with work and studies that they feel they cannot justify the time to respond to the survey.

3. (Self)-awareness of support needs

A third possibility is that the students themselves are not as aware of their support needs as their tutors. While a conscious effort was made in this study not to canvass the opinion of the tutors on the course, one fact remains that the leaders of the programme did not consider this investigation futile. A follow up study could analyse tutor feedback data from the assessments to determine whether weaknesses can be attributed to language and cultural background.

4. Representative nature of the sample group

A final possibility is that this specific group of online learners are not representative of the vast majority of online learners in other higher education contexts. Though respondents in the earlier study were not asked to distinguish between undergraduate and postgraduate students, many of the comments were provided by people teaching in postgraduate contexts. But it is still possible that the students on the Pain Management course are not representative even of postgraduate students in an online distance learning context. One possible reason for this is that highly trained people in the medical profession in almost any society worldwide are typically representative of an educated elite rather than the average student accessing higher education. This patrician class are an educated elite who have already proven their academic prowess by virtue of the fact that they have successfully completing what is often an extremely academically demanding first degree.

6. Conclusion

If we accept the face validity of the findings from the current study and view them in isolation, there seems to be a clear indication that (from self-reported needs at least) there are no apparent differences between support needs of NES and NNESs on the Pain Management programme. When the findings are put into the context of the previous study, it seems that the face validity of the findings of both studies need to be challenged. What this does indicate is the need for further investigation to provide reasons for the apparent inconsistencies. There are two obvious avenues for further investigation. The first is to analyse other, descriptive statistical data from the Pain Management programme such as assignment scripts and tutor feedback. The second would be to undertake a similar analysis of a different online study context in which the English language and academic proficiency of the NNES students were not as high. This might be an undergraduate programme which commonly accepts students with the equivalent of IELTS Band 6.

As was stated at the end of the earlier paper[14], this is a very rich vein of inquiry whatever the eventual findings precisely because it has the potential to eventually inform best practice in student support for NNESs in online contexts.

Notes

1. De Vita (2000)
2. Adapted from the Times Higher Education Supplement 6/12/2002, 23/01/2003, 11/07/2003
3. IDP (2003)
4. Catterick (in press)
5. Williams (2000)
6. Kim & Bonk (2002)
7. McNickle (2001)
8. Alexander (2002)
9. Catterick (in press)
10. Catterick (in press)
11. Pain Management & Research Centre (n.d.)
12. Williams (2000)
13. Catterick (in press)

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Building and Delivering the Virtual MBA: a Case Study of Organisational Learning

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1. Introduction

Fundamental developments in information technology lead to its increased use in education, and especially distance learning. The field of online learning is relatively new and arguably the most rapidly developing area of education. (1) Business education in particular lends itself well to 'virtual mode' of learning due to increasing demands for flexibility from business people. (2) While a number of universities offer fully online degrees, the differences in premise, structure and quality of online courses are immense – consequently, every individual case study is a valuable contribution to the new and growing body of knowledge.

The major focus of this paper is on organisational learning in terms of the evolution of the teaching faculty as a result of adapting an online method of course delivery. The paper provides an analysis of the stages in the development of the online MBA programme and discusses the journey of the online teaching faculty from innovation to mainstream.

Finally, the implications of the School's experience within the field of online learning are discussed and emerging and future issues in building and delivering virtual courses are considered.

2. Why e-Learning? A story behind the vision

The Graduate School of Business (GSB), Curtin University of Technology, is situated in Perth, Western Australia. One of the seven teaching faculties within Curtin Business School, it was established in 1993 and has developed into a world class graduate school. In 2003, the GSB succeeded in achieving an Association of MBAs accreditation, have qualified for the European Quality Improvement System (EQUIS) award from the European Foundation for Management Development and was listed by the Economist Intelligence Unit as having one of the top 100 MBA programs internationally. (3) The GSB offers post-graduate education, there is a condition of a minimum of 3 years of post-first degree work experience for the entrance to Master's programs, and the average age of the GSB student is 33. (4)

However, being one of the best graduate business schools is not enough, as local geographical conditions in Western Australia (WA) are particularly challenging. Perth – the capital of WA - is one of the most remote cities on Earth. (5) The area of WA is about 2.5 million squire km – one third of the whole Australian continent, enough to fit five countries the size of Spain. Its population, on the other hand, is less then one-tenth of the whole of Australia – about 2 million, half of which lives in the capital of Perth. (6) In addition, WA is a mining state, and a relatively large percentage of adult working population does shift work (e.g., "fly in – fly out" arrangements, where the employees are flown to the mine, work 12-hour shifts for a number of weeks, and then flown back home for a weekly holiday). Naturally, such schedule does not lend itself to a traditional face-to-face mode of learning, but traditional mail-based distance education with its notoriously high rates of drop-outs does not seem to be a fitting solution.

Trying to build up its student base in a highly competitive local market (with 4 other local universities offering MBA degree), in 1998 the GSB introduced a concept of 'flexible learning', allowing the students to design a study plan that fits their learning style and busy schedule choosing from traditional face-to-face, intensive or mixed mode classes. The latter, originally incorporating compulsory face-to-face component, developed into e-Learning – a fully online mode of study.

3. Online courses at the GSB: structure and principles

Aware of the potentially high costs of building online courses, the GSB engaged industry professionals to design an educationally and technologically robust model of online delivery and undertook a marketing survey of its students aimed at assessing potential demand and a level of readiness for online courses. The study has confirmed what was largely anticipated - that the level of demand for alternative mode of delivery was sufficient. Perhaps, the last decisive piece of verification was the fact, that the GSB students rated themselves very high on technical proficiency questions in the market survey, as previous experience with technology is considered to be one of the predictors of success in online learning. (7)

From the very beginning, the GSB was conscientious to design its online courses based on sound pedagogical principles and undertook a thorough research of existing best practices in delivering education via the Internet. Social constructivist approach was adopted, and critical importance was given to developing a clear structure and critical pathway for the students. (8)

The following outline of the typical online course at the GSB reflects the current position and is a result of a long journey of organisational learning.

Each course consists of 12 learning modules delivered over the course of 12 weeks (one trimester). Small class sizes (between 10 and 40 students) allow for significant levels of online interaction – both between the students, and between students and an online facilitator. Customised, media-rich, interactive learning materials include voice-over-PowerPoint slides, i-Lectures (a digital video of the lecture accompanied by Power-Point slides) and various additional learning materials. All learning materials are delivered within a standardised template, which incorporates an overview of the module, readings and internet links, self-assessment, practical activities and discussion. To ensure compliance with copyright regulations, readings and additional materials for the course are deposited into university-wide E-Reserve in digital format, and the students are given direct links to the corresponding readings within each module of their course.

Assessment drives learning. Authenticity of assessment is ensured by the strategic use of situated and contextual learning and assessable package includes structured and facilitated discussion and teamwork. The model promotes learner engagement and cooperation between peers and extensive continuous feedback from online facilitator. Together with the use of discussion tools, community of learners is promoted through use of "online profiles", where the students share their work and study experience, as well as some personal information such as hobbies, achievements, inspirations and personal photos.

Approximately one week before the beginning of the new trimester, each student enrolled in an online course receives a welcome email from the lecturer, with the standardised course outline attached. The welcome email explains how to log into the unit and how the unit is structured, gives useful links on the GSB website and outlines the tasks for initial assignments –

participation in the discussion about the students' learning expectations from the course and building their personal profile/homepage online. On the first day of each trimester, there is an optional face-to-face session at the GSB – software orientation, followed by the course orientation. The former is delivered by the member of e-Learning team, the latter – by the online facilitator.

Finally, strong ongoing online support throughout the course includes weekly emails from online facilitator, availability of technical help (24 hours turnover of HelpDesk calls), built-in sections containing general and technical information, general questions discussion rooms and website information on e-learning.

4. Face-to-face vs. e-Learning: student academic achievements

A number of studies conducted in recent years confirm that the online students achieve as good results as face-to-face ones. (9) The two-year study of nine post-graduate business courses, undertaken in the GSB, has demonstrated similar results. The courses selected for the study were taught both face-to-face and online. They had the same educational content, similar assessment structure, similar class sizes (between 10 and 40 students) and the same course controllers. Total number of the students reviewed was 1401, 65% of them males and 35% females with the mean age of 33. The students who undertook face-to-face classes amounted to 77.5% of the total, with 22.5% for e-Learning classes.

The findings demonstrated, that there was no significant difference in either learning mode on individual course level and no significant difference in academic achievements by gender. When taking the average of all student grades across all courses, e-Learning students did significantly better; however, the effect size indicator of 0.11 suggests small practical significance. Students under 33 years of age did significantly better in e-Learning mode; but, perhaps, the most interesting finding was that at the one percent level of significance, the students experiencing both e-Learning and face-to-face modes of study did significantly better in e-Learning. (10)

Even accounting for some limitations of the study (i.e., certain incongruity in comparing the two modes of study, using 'grade' as a single measure of outcome, sample size differences across 2 groups and possible student learning style bias), the research gives some assurances that well-designed and facilitated online course can deliver academic quality outcomes equal to or exceeding that of the traditional face-to-face class.

5. Evolution of a teaching faculty: from innovation to mainstream

The journey of the GSB in building and delivering the virtual MBA can be viewed as a sequence of three developmental stages.

Stage 1: Planning and learning (1998 – 2000)

The marketing survey of the GSB students demonstrated not only an interest in online mode of study, but also a high level of technological competencies among the students. Ongoing research and consultations with industry professionals, undertaking during this stage, informed the choice of a software (IBM Lotus LearningSpace, at the time) and the structure of the online courses. Two pilot projects were carefully planned and carried out, followed by extensive analysis and feedback sessions and necessary adjustments to reflect the learning. Choice of the lecturers for pilot projects was viewed as an element crucial for success of the programme. Thus, one of the

most important factors was the fact, that the whole initiative was pioneered by the GSB director and her subject was among the first chosen for teaching online. At this stage, the GSB has also won a competitive teaching and learning grant from the University, allowing some extra funding and resources to be channelled into the online course development.

Stage 2: Moving into production (2001 – mid. 2002)

Following the planning and learning stage, e-Learning team was set in place. The team initially consisted of an academic with a PhD in education, e-Learning Coordinator with technical expertise and e-Learning Specialist. E-Learning Committee, including the GSB director and the director of the MBA, was formed; and business processes and procedures for online development established. Internal and external marketing of e-Learning was very important at this stage, and all members of the academic staff were encouraged to attend e-Learning workshops, chaired by the GSB director. Intense building of 'mixed-mode' (with a compulsory face-to-face element) courses took place at this stage, and funding from the grant allowed all academics involved to use the help of a research assistant (approximately 12 full-time days per subject). An average cost of designing and building a new online course was estimated to be around 35 thousand Australian dollars (approximately 20 thousand Euro).

Stage 3: Reaching maturity (mid. 2002 – 2004)

The feedback from mixed-mode students helped to realise that 'mixed-mode' delivery was only a half-measure, which failed to deliver the promised degree of flexibility. Consequently, the third stage of online development was characterised by the GSB experiencing a paradigm shift – from 'mixed mode' to fully online delivery. As the pool of online offerings grew in size and matured, e-Learning became a part of a core business and lead to recovery of initial investments.

During this sage, a project-based mixed teams approach became the primary way of managing delivery of online courses. Every trimester, the GSB offers six courses online (i.e., 18 are offered online every year). Each of these courses is treated as a separate project, delivered by a team consisting of an online facilitator, enrolment officer, librarian and IT support person. Each of these teams is lead and managed by a member of e-Learning team, who develops a project management plan for each particular course in consultation with the course controller. This approach allows to address the differences between the courses and accommodate the qualitative changes following the students' feedback. It also ensures the smooth and timely delivery of the courses within tight time-frames of the trimester system. Every course contains a carefully developed anonymous Course Evaluation Survey and the students are advised that the feedback collected helps to improve not only the course they have just completed, but all online courses – that is, they are likely to find their suggestions implemented within the next online course they choose to study. The cycle of continuous improvement means that no course is run in the same format twice – as a rule of thumb, every course undergoes a cardinal re-development following two rounds of small adjustments (i.e., every third to forth time running the course is fully re-developed).

It is interesting to note, that at the present time all of the GSB fully online courses still offer optional face-to-face sessions, however majority of the lecturers report that they do not generate enough interests from the students and often end up being cancelled.

6. Organisational lessons: implications for the field of online learning

The authors of this paper are the members of the GSB learning team. The team is effectively serving as a local knowledge depository, accumulating, storing and disseminating both explicit, and, more importantly, tacit knowledge in the organisation. The summary below reflects perceptions of the members of e-Learning team and is grounded in their experience and direct involvement in both building and delivering of the virtual MBA, as well as conversations and exchanges with online facilitators and students.

A. Leadership and commitment to vision.

Moving towards e-Learning is time-consuming and difficult. Moreover, it requires some specialized technical knowledge – arguably, an area well out of comfort zone for many academics. Without strong leadership, clear vision and non-wavering commitment it is impossible to reach the destination - the staff will simply pursue other interests and projects. The GSB director has provided a strong personal example, sending a powerful message that the School is committed to online learning and encouraging the members of the teaching faculty to join in the programme.

B. Detailed planning, careful research, use of expert knowledge and adequate resources.

Leadership has to be supported and substantiated by good management, careful planning and adequate resources. Preliminary research has suggested, that building online courses is an expensive project. Consequently, once the decision to build online courses was made, it was clear that the building phase of the project, as the most expensive part of it, has to be preceded by detailed planning, careful research and use of expert knowledge to find the optimum solution. Although the cost of such approach is high in the beginning, it saves considerable funds at the end by giving the stakeholders the necessary methodology, knowledge and tools and keeping them focused on the task. At the same time, providing adequate resources is critical – especially for such a complex wide-scale project - and allows to keep its focus and momentum.

C. Internal and external marketing and PR.

External marketing is self-explanatory. Internal one, on the other hand, is often overlooked. It was clear from the very beginning, that the project should be promoted to the teaching faculty to generate some interest and enthusiasm. The lecturers whose courses were converted for online mode of delivery have received recognition and resources. Once the project gained some momentum, joining in was viewed as a chance to re-vamp the existing course with the help of a research assistant; it also carried certain prestige.

D. Continuous learning cycle and collective reflective practice.

As the teaching faculty moved forward with e-Learning, reflective practice — peer coaching, contemplating on successes and failures at a school wide level, lectures and workshops - progressed learning at the School and moved everyone along the development ladder at the same time. Continuous learning cycle ensures that the quality of the courses improves and the teaching faculty as a whole remains fluid, flexible and knowledgeable.

E. Local specialist support.

One of the functions of e-Learning team was to support academic staff with their specialist knowledge of instructional design, computer systems and technical aspects of the building and delivery of online courses. Having e-Learning specialists readily available and easily accessible ensured efficiency and effectiveness of the online project.

7. Emerging and Future Issues

Rapid advances in technology keep changing methods, pace and scope of education, extending the possibilities and giving the practitioners the new, wonderful and effective tools for teaching and learning – at the same time driving staffing and support requirements and, consequently, costs. In the competitive market of postgraduate education, growing student expectations put pressure on the schools to keep up to date with the new technological developments. Unfortunately, in practical terms it means that academics have to learn and perform a range of tasks which, essentially, do not add value to learning but are often tedious and time-consuming (e.g., administration of discussion boards or group management in online learning). Such activities also take academic staff away from their core business - teaching and research – and, consequently, the potential for promotion. In the traditional university, there is no mechanism to reward such singular acts of innovation – but, perhaps, the increasing popularity of e-Learning will, in time, serve as a catalyst for a major paradigm shift.

In the current state of higher education, with its rapid changes and accelerating pressures, perhaps, the best way to conclude this paper is by quoting one of Lewis Carroll's characters: "Now, *here*, you see, it takes all the running *you* can do, to keep in the same place. If you want to get somewhere else, you must run at least twice as fast as that!" (11).

Notes

1. Zhang & Zhou, 2003 and Zhang & Nunamaker, 2003
2. Bocchi et al., 2004
3. See http://www.mbaworld.com/index.php?content=accreditedlistall for Association of MBAs accreditation, http://www.efmd.be/ for EQUIS award and http://mba.eiu.com/index.asp?layout=2002rankings for the ranking from EIU.
4. GSB profile is available at http://mba.eiu.com/index.asp?layout=2002rankings
5. Read about Perth, Western Australia, in http://www.firststep.com.au/perth/
6. *Britannica Online*, http://www.britannica.com/ebc/
7. Bocchi et al., 2004
8. Walker et al, 2003
9. Hiltz et al., 2002, Morales et al., 2001 and Katz et al., 2003
10. Ladyshewsky, 2004
11. Lewis Carroll, *Through the Looking Glass*, 1872, Ch. 2

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