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Learning and Sustainability

The New Ecosystem of Innovation and Knowledge

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Learning and Sustainability – The New Ecosystem of Innovation and Knowledge

The aim of the 2011 EDEN conference has been to integrate the concept of responsible and sustainable development within learning, in its widest sense.

Sustainability is nowadays acquiring a new meaning as inclusive concept. Trends that capitalize new technologies in a sustainable way are critically important. Smart strategies also include the flexibility offered by ICT-supported solutions, including those in the world of learning.

Many policies and programmes take on board a new vocabulary of sustainable development. Movements around sustainability and ecology in the past decade changed our approaches and thinking in radical and inclusive ways. New technologies and openness in learning pave the way to a socially and environmentally sustainable future: representing collaborative creativity, connectivity, access and transparency.

The links between sustainability and learning are numerous and natural. We can visualize these relationships in many contexts. E-learning, learning innovation, open learning, ICT enhanced learning, the so called atypical learning forms: all are modernization factors enhancing the ecological consequences of technical development. Elements of the sustainable professional learning toolkit include: good instructional design, user-friendly learning environments, responsible use of technologies, informal learning, accreditation of prior learning experience. The role of innovative learning and training as critical awareness raising factors for global sustainability links organically to education around understanding the contexts of ecological challenges and opportunities.

Sustainable e-learning linked to professional development is based on organic organizational and pedagogic perspectives, while using ecologically appropriate technological solutions. In this context, it is most important to conceptualize and analyze the changing nature of learning – including lifecycles of learning and knowledge and their methods and paradigms. This connects naturally to the conscious use and re-use (recycling) of learning objects, in a matrix of organic sustainable development. The sustainability scenario includes re-interpretation of mobility: being always connected by new generations of mobile devices, realizing virtual collaboration through e-infrastructures.

Sustainability and openness go hand in hand. Transformed approaches around access to information, resources and knowledge in the digital world have fundamentally changed business models, structures and processes. Sustainability and openness together represent collaborative creativity, connectivity, access and transparency. High rates of change, due to information technology development and the momentum of innovation, mean we must seriously approach sustainability of the culture and community of e-learning.

EDEN is grateful for the support and commitment of the Conference host: Dun Laoghaire Institute of Art, Design & Technology (IADT). We trust that the pleasant surroundings of the University College Dublin, will ensure inspiration for intellectual exploration, dialogue and learning partnerships.

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Oslo – Budapest, June 2011

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TOWARD THE AGE OF AUGMENTED COGNITIVE CAPACITIES: THE NEXT CHALLENGE OF THE KNOWLEDGE SOCIETY AND E-LEARNING

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New technologies often develop in waves, entailing new spheres of individual and social activities. Each of these waves relies on the previous one, but goes far beyond boundaries untouched by preceding waves. This is true for e-learning, the technological breakthroughs on which it is based, and the ways in which it has impacted individuals and society. During the 1980s, we faced the first wave of *computer-based learning*. Its challenge was centred on developing learning programs that take advantage of the rich, flexible and interactive design and presentation possibilities that the PC and multimedia introduced for the improvement of learning. Since the end of the 1990s, the penetration of the internet, Google, Wikipedia, social networks and mobile phones brought the second wave of *web-based learning*, and with it the challenge of adapting learning to the endless resources and possibilities that these environments introduced regarding all parameters of the learning process.

We now face the third big challenge for e-learning – the need to adapt learning to emerging possibilities of augmenting human cognition with novel technologies, often in a non-mediated way (i.e. when technological devices are no longer conceived as distinguished from the human body). The challenge that such augmentation presents can be called the challenge of *augmented cognition-based learning*. Augmentation of human cognitive capacities is the fruition of the convergence of emerging R&D breakthroughs in several areas: increased understanding of brain operation and the ability to model human reasoning, enhancing artificial intelligence; ability to communicate directly with the human brain; ever improving semantic text and speech analysis; understanding and modelling of emotions and affect; understanding of human motivation in its complexity; virtual realities that combine virtual environments with the real world such that they are indistinguishable; and nanotechnologies which enable the integration of devices into the human body.

These developments will

- augment important cognitive abilities as perception, memory, reasoning, reflection and the interactions among them.
- provide an experience of using *our own* body and capacities (unlike the experience of using an external device).
- allow the formation of partial interrelated models based on cross factoring various parameters of human personality and activity, and the presentation of these models (or some of their implications) to individuals, thus supporting ongoing reflection in and on action.

As it is always the case with a new and powerful technology, both extremely negative and dramatically positive uses could be made of these powerful augmenters. They can impact us in two opposed ways – by contributing to human flourishing and self-fulfilment, or by serving all kinds of “big brothers” and big interest groups in the enslavement and manipulation of human consciousness.

After presenting these dramatic emerging developments in detail, the presentation will focus on the more primitive augmenters that are already under development or will be developed in the near future, and suggest ways for enhancing human learning potentialities based on these augmenters in combination with conceptions of knowledge and learning that are suitable for the next phase of the knowledge society.

FROM DISTANCE TO ONLINE EDUCATION: EDUCATIONAL MANAGEMENT IN THE 21ST CENTURY

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The increasing interest in distance education for Umea University is related to a couple of factors in society. First, the state in Sweden has historically had an interest in distance education to ensure education to citizens. Secondly, the location of Umea University in the northern part of Sweden contributes to a responsibility to develop the sparsely populated region and to educate people with limited possibilities to read campus courses. And thirdly, the Swedish educational system for higher studies is partly dependent on number of students to succeed, since the economic support to the University is based on how much the students have completed i.e. output based. Among their innovations in the competition for students, universities have turned to distance education using information and communication technologies to attract students. Today 70% of the new students at Umea University are distance or online students. The trend is that more and more courses are carried out in online environments without physical meetings (online education). The focus in this paper is the shift from distance to online education by investigating the courses at department of education from an educational management perspective. The aim is to describe and analyse the development of distance education from the beginning of 1990s to 2010 in terms of driving forces behind the development and the consequences of it, with the department of education at Umea University as a case in point. The description and analysis derives from economical, staff and student data, policy and strategy documents regarding ICT and learning. The data has been categorised according to number of courses, total yearly income of distance and campus courses, registered students at distance courses, output of students.

The department of education has had a long interest in distance courses. A strong interest of using technology in education contributed to that video conferences were used in the early 1990s in distance education. In the middle of 1990s ICT, email and world wide web, started to replace the delivery of the course material. From the beginning of 1995 to 1998 the teaching on the web changed character from delivery of information to possibilities to interact with teachers and peer students. In the 1990s it was teachers with an interest for learning and ICT that worked with the development of learning management systems and implementations of ICT tools in education. In year 2001 an ICT educationist was employed which was followed late 2002 with a new employment of one more ICT educationist. Today there are three ICT educationists employed at the department. However, despite this stronger emphasis on ICT as a tool for teaching it took many years before everyone at the department had to work with ICT in their teaching. In the ICT policy from 2002 the ambition was that ICT should be used and integrated in teaching but also to initiate ICT-pedagogic development. In the document information and communication strategy from 2008 the role of ICT in teaching and online education is much more explicit expressed about how ICT should be used to support the teacher and the students to enable for distance and flexible studies. In year 2010 the decision was made to not have any particular ICT Policy since it is fully integrated in the daily activities at the department.

The results from the investigation of economical, staff and student data shows that both the number of courses and the number of students increased for distance and online education. The number of registered distance students increased in high extent and especially from year 2005 and forward and increased dramatically 2007 which also was the first time when all distance courses shifted to totally online courses. In year 2008 the department determined to promote courses in 100% study pace totally online. The results show that these courses attract much more students compared to the traditional campus courses which over the years attracted less and less students. The extreme increase of number of students might not only be dependent on the online mode. At the moment there are a lot of possible students in Sweden due to large birthrate in the late 1980s and early 1990s which also is combined with a low conjuncture in society. The income from online courses totally 2010 was 778 700 Euro and 55 800 Euro from campus courses. The transition from distance to online courses has contributed to more students (economy of scale) which make it possible to release resources for pedagogic development work. The online courses have also contributed to better working conditions for the teachers. Without the conscious educational management strategy the alternative might have been to discontinue general educational courses, which had been a serious threat for education as an academic subject. One conclusion we draw is that ICT pedagogical development needs both technical and pedagogical support in combination with support from a strategic leadership.

A JOINT VIRTUAL-CAMPUS MASTER'S DEGREE DESIGN ON INFORMATION AND COMMUNICATIONS TECHNOLOGY (ICT) IN EDUCATION FOR SUSTAINABLE DEVELOPMENT (ESD)

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Education for Sustainable Development is a philosophy and practice that looks beyond the notion of Sustainable Development as some form of static knowledge base about the environment, economics or society, and instead examines the *teaching and learning processes* that guide and motivate learners (thus, citizens) to live their life in a more sustainable way. This paper offers an overview of an innovative online Master's degree programme on ICT-enabled ESD currently under development (October 2010-September 2012)¹. 25 teaching staff and 70 prospective Master students have been selected to take part in the diagnostic, formative and summative analysis and the VLMS (Virtual Learning Management System) validation and the Master course curriculum. A pedagogical framework has been developed guided by four principles: 1) learner-centred instructional design; 2) transformative use of ICTs; 3) problem-based learning; and 4) online student-tutor-peers interactions. Based on the pedagogical framework, the programme of study (curriculum) will be developed focusing on an interdisciplinary approach addressing the four pillars (environment, society, culture and economy) of sustainable development. It makes use of ICTs in three ways: a) provide opportunities to target groups for reflective practice; b) use open source ICT tools and ESD-related learning objects available in the Web; c) use ICTs to develop interactive, interdisciplinary and cross-disciplinary ESD learning activities. The paper opens with a discussion on the rationale and background to the ICT-enabled ESD Master's degree programme, moves forward with a summary of progress to date in the design and development of this Master's degree programme and ends with a discussion of the importance of integrating ESD in formal and non-formal educational settings.

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PROMOTING ECO-CITIZENSHIP WITH MULTIMEDIA LEARNING RESOURCE

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Abstract

The paper describes how two experiences (communication campaigns) carried out in France along the Mediterranean seacoast to promote eco-citizenship in collaboration with the Laboratory of Social Psychology of the University of Provence and the “Ecogestes” collective have been used to create an e-learning resource produced by Videoscop Université Nancy2 for UVED (Université Virtuelle Environnement et Développement durable). After a description of the experiences is presented an approach coming from the research in psychology: the Binding Communication Paradigm (Joule, Girandola, & Bernard) used to improve the impact of communication campaigns. The last parts present content and aims of the learning resource and also further possible steps to this project which could be: to use binding communication at an European level for experiences in the field of environment conservation and in this case to create a new kind of learning resource: a web documentary.

Résumé

Le document décrit comment deux expériences (campagnes de communication) réalisées en France le long de la côte méditerranéenne afin de promouvoir l'éco-citoyenneté et réalisées en collaboration avec le Laboratoire de Psychologie Sociale de l'Université de Provence et le collectif «Ecogestes», ont été utilisées pour créer une ressource pédagogique produite par Vidéoscop Université Nancy2 pour l'UVED (Université Virtuelle Environnement et Développement durable). Après une description des expériences est présenté le paradigme de la communication engageante, résultat de la recherche en psychologie sociale (Joule, Girandola et Bernard) utilisé pour améliorer l'impact des campagnes de communication. Les dernières parties présentent le contenu et les objectifs de la ressource pédagogique ainsi qu'une future évolution possible pour ce projet qui pourrait être d'utiliser la communication engageante pour des expériences européennes en matière de conservation de l'environnement et de créer un nouveau type de ressource numérique: un web documentaire.

HOW AND WHY DOES EDUCATION FOR A SUSTAINABLE FUTURE CALL FOR NEW VIEWS OF ASSESSMENT?

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At the turn of the 19th century, Guðmundur Finnbogason, an Icelandic psychologist educated in Denmark said:

In other words: the education of each person must be assessed according to whether he is competent to live and work in human society, to live and work such that his life each day attains more value for himself and others No-one can become a person except in the society of others.

The Decade of Education for Sustainable Development (DESD) questions traditional educational practices promoting instead: interdisciplinary and holistic learning, values-based learning, critical thinking, multi-modal approaches participatory decision-making and locally relevant information. The aim of this paper is to develop an argument that the pursuit of education for sustainable development can be approached through using assessment as a tool for change. Schooling and education is made up of many interacting activity systems. Individuals are educated within a society. Activity systems which have education and/or learning as an object can be described and analysed with respect individual learners, a society, schools and the workplace. Assessment is of mutual relevance to school systems and the workplace. Discussions and collaboration on the roles of assessment within each system could become a tool for change by functioning as overlapping areas of practice or shared objects. Current assessment practices in schools and the workplace do not support some of the core values of ESD. ESD itself represents a different approach (frame of mind) to standard educational practice. Assessment methods appropriate to ESD can become tools for sustainable change in schools and the workplace. Key concepts for the full argument are object-oriented activity systems, work and learning, as well as society and the individual and their relationship to one another. The theoretical approach draws particularly on cultural-historical activity theory being developed and deepened by a range of cross-disciplinary researchers. It also draws on the notion of the pedagogic device and the recontextualisation of knowledge developed by the late Basil Bernstein. Assessment tools and evaluative criteria mediate the manner and extent to which the ESD frame of mind might be considered desirable, not only by learners and parents, but also by teachers and the larger society.

Four assertions are made about assessment practices in schools. The challenge is to move towards new practices.

- *Existing forms of assessment promote static, not dynamic, views of learning.* Existing forms of assessment do not serve 'transitions' well. Transitions are found in trends in society, such as the use of technology or (im)migration. Learners experience transitions between school levels, between the workplace and school and within in the workplace. Assessment practices at transition points generally do not reflect the dynamic or social nature of learning.
- *Current assessment privileges certain types of knowledge.* Mainstream assessment often reflects high-stakes positivistic knowledge without acknowledging the need to protect intergenerational knowledge or knowledge that is culturally or place specific. Students may become alienated. Skills and values are considered to be distinct from one another.
- *Common approaches to assessment assume that scientific knowledge is culture free.* Assessment practices typically reflect criteria of knowledge based on a techno-scientific-industrial culture without acknowledging that science and technology are not culturally neutral and that decision-making can be problematic. Post-normal science and new technologies mediate conceptual direction and ways of knowing.
- *Assessment often concerns individuals, not communities (of practice).* Assessment often focuses on individual performance encouraging an individual rather than a community approach to learning. Learners do not have to consider the values of the community and what might justify individual views and expression. Uniformity rather than diversity is the norm. *[This is] the problem which schools are battling with, when a culture is transformed, alienated, to become school knowledge. The aim and role of the school must be to work against the alienation of learning.*

Assessment lies at the boundaries between the individual and society, between learning and work. In looking for collaborative opportunities, the core activities of teaching and learning however remain within the professional domain of teachers, just as workplace procedures remain the responsibility of those in the workplace. But assessment is of mutual relevance and collaboration on the aims and functions of assessment is an overlapping area between communities of practice and has the potential to be a boundary object between work and learning thus driving change in education.

eLAB, A PERSONAL LEARNING ENVIRONMENT FOR THE GREEN OPEN INNOVATION PLATFORM

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Open Innovation is a relatively new concept which involves a change of paradigm in the R+D+i processes of companies whose aim is to create new technologies or new processes. If to this change, we add the need for innovation in the new green and sustainability economy, and we set out to create a collaborative platform with a learning space where this can happen, we will be facing an overwhelming challenge which requires the application of intelligent programming technologies and languages at the service of education.

The aim of the Green IDI (Green Open Innovation) – Economic development and job creation vector in SMEs, based on the environment and sustainability project is to create a platform where companies and individual researchers can perform open innovation processes in the field of sustainability and the environment.

The Green IDI (Green Open Innovation) project is funded under the program INNFACTO by the Ministry of Science and Innovation of Spain and is being developed through a consortium formed by the following institutions: *Grupo ICA; COMPARTIA; Grupo Intercom; CETAQUA* and the *Instituto de Investigación en Inteligencia Artificial (IIIA)* from *Consejo Superior de Investigaciones Científicas (CSIC)*. Also the consortium include *Fundació Privada Barcelona Digital; PIMEC* and *Universitat Oberta de Catalunya (UOC)*.

Sustainability and positive action for the environment are considered the principle vector of economic development for companies. As Nicolás Scoli says (2007) “in short, preventing unnecessary consumption and the efficient consumption of resources means producing greater wealth with less. Both effects lead to reduced pollution linked to production and consumption”.

The Spanish Sustainable Development Strategy (EEDS) plan defends consumption and sustainable production linked to social and economic development by adhering to the commitment not to endanger ecosystems and abolishing the idea that economic growth is directly proportional to the deterioration of the environment.

Uniting the Open Innovation and New Green Economy concepts leads to the "Green Open Innovation" Platform creation project.

This article analyses the concept of open innovation and defines the importance of the new green and sustainable economy. Lastly, it proposes the creation of eLab. The eLab is defined as an Open Green Innovation Platform personal and collaborative education space which is fed by the interactions of users and which enables innovation processes based on new green economy concepts to be carried out.

The creation of a personal learning environment such as eLab on the Green Open Innovation Platform meets the need to offer a collaborative space where platform users can improve their skills regarding the environment and sustainability based on collaborative synergies through Information and Communication Technologies.

TENSIONS AND CONTRADICTIONS IN SUPPORTING LEARNING FOR SUSTAINABILITY

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In this paper we discuss the tensions and contradictions that we have experienced in developing a virtual Leadership for Sustainability Learning Network (LSLN) for the North-West of England.

The LSLN is based on the use of social networking software designed to reflect the ideas and principles of networked learning. The aspiration was to develop a meeting place in which LSLN members could exchange learning, develop resources and support each other in the continuing development of their capacities and impact within the area of sustainability. Its primary aim was to support the learning of members seeking to take action and leadership for sustainability through collaborative and inquiry based action research.

The development of the LSLN was part of a larger project supported by a grant from the Higher Education Innovation Fund. The project also involved running a six month 'Leading on Sustainability' development programme in partnership with Business in the Community. The participants of this programme were intended to be the pilot group to use the LSLN. The paper, which incorporates several research strands within an overall action research approach, identifies and describes the following themes as significant for both the development of the LSLN itself and for taking leadership for sustainability:

- Technology rather than learning can become a focus of attention
- Identity issues in online learning are insufficiently recognised
- Networked learning surfaces tacit issues of digital literacy
- Hesitancy in participation and engagement
- Tensions in the management of content
- Challenges of self sustainability

After describing each of these themes we go on to identify significant issues that we believe have emerged from this initiative and research. These include; the congruence between the tensions and contradictions experienced in both the use of networked learning and in relation to leading on sustainability. That it is neither desirable nor possible to eliminate many of the key tensions and contradictions. Recognition of the socio-material affects of technology and, finally, the importance of both content management and digital literacy for learning through or being supported by social networking.

HIGHER EDUCATION, RURAL DEVELOPMENT AND SOCIAL SUSTAINABILITY

Anna Guðrún Edvardsdóttir, Allyson Macdonald, University of Iceland, Iceland

Knowledge and knowledge production is no longer the exclusive property of an academic elite. The numbers of those attending university have risen sharply over the last 10 to 20 years and knowledge and research are consequently less associated with elevated social status. Issues of sustainability are increasingly discussed in Iceland and Scotland as coastal villages, islands and farming communities lose inhabitants to more urbanised areas. We are interested in the contribution higher education can make to life in rural areas and to increasing their sustainability.

In our paper the focus is on adults in rural areas in Iceland and Scotland and the value which they attribute to their university studies. Is the co-development of higher education institutions and research institutions in rural area working? There are also questions on the extent to which university strategy recognises and realises the contribution it might make to rural sustainability, not only with regard to natural resources but also to social sustainability.

The Bologna declaration from 1990 is a political agreement based on the decisions of policy makers, governments in EU and higher education systems on the development of the higher education system in EU countries. Even though societies have changed, the cornerstones of the higher education system are teaching and research. Governments have put more pressure on their higher education systems to work with private institutions and rural communities in order to increase the level of education and to help communities to be more competitive.

Since the 1960s, higher education development in the Nordic countries has been presented as a policy tool which could boost regional development in rural areas. We would like to relate this discussion to the discourse of sustainability and implications for education. Social sustainability involves an *individual's capacity* to contribute to his/her own and the community's well-being and a *community's capacity* to engage in collective action in order to improve and sustain a quality of life, as developed by City of Vancouver in 2005.

This is a challenge which universities must face as they promote distance learning in remote areas.

- A contribution to social sustainability could be made through research and development with distance learners in mind, and in developing a curriculum which nurtures sustainable knowledge and skills and encourages discussion on issues, perspectives and values.
- To meet new demands for knowledge and skills university teachers may need to adopt a pedagogy and develop a curriculum more suited to encouraging social sustainability, for example, through validation of community-oriented project work. This will be the challenge for university-level distance learning with a widely dispersed student group living in varied geographical areas.
- It might be important for universities to keep in mind certain guiding principles to ensure human well-being, such as 'equity, social inclusion and interaction, security, adaptability'. Such principles are not high on the list of priorities set by some universities.

LIFELONG LEARNING ECOLOGIES AND TEACHER'S PROFESSIONAL DEVELOPMENT: A ROADMAP FOR RESEARCH

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The last ten years or more have been a period of intense change, both on a structural and general level. We live in a time of confusion, common to moments in time where there is a historical transition from one type of society to another. This situation has led to a substantial change in the professional needs, competencies and skills required by individuals in order to progress in the Net society. It is imperative for individuals to reexamine their professional development and the acquisition of new knowledge via processes which are different from those we have been familiar with up to now.

Faced with this situation, training is seen as the 'best way' to guarantee the development of highly productive work environments. The updating of traditional training models is a topic currently undergoing much debate. In the current ever-changing context based on the use of ICTs, the importance of integrating elements of formal, informal and non-formal education is crucial.

Another key aspect of the updating of professional training and development is personalization: adapting policies to the specific needs of each individual, according to their style of learning. In this context, it is clear that the use of ICT in education extends the potential learning space for professional development and updating of skills, thereby generating life-long, life-wide, and life-deep learning opportunities. These concepts imply that potential learning spaces are neither developed in a linear fashion nor linked to a specific geographical setting. Each professional is therefore presented with a wider and more varied range of possibilities from which to create a complex structure of interlinked relations and components which form his own learning ecology: his personal strategy for professional development and relations.

The concept of ecology moves beyond Communities of Practice, Interest groups or Learning Communities and further even than social networks, given that these only exist as selected components of each individual's learning ecology.

What is not yet clear is whether this framework of different contexts and mechanisms is really sufficient to solve one of the great challenges of the Net society: professional training and updating of skills. Can learning ecologies really improve those formal systems of life-long learning which have been in use up to now?

Other different questions arise in this context: Is the concept of learning ecologies a valid way to explain and increase levels of personalisation in life-long learning? How can each individual use his/her own learning ecology in order to improve his/her professional activity? Which success factors or strategies need to be identified? What role does ICT play in the setting up of these ecologies?

The aim of the research we are going to present is to analyze and understand the ways in which learning ecologies contribute to the professional development of primary and secondary school teachers throughout their lives. In this paper we present the first attempts to conduct this investigation.

SUSTAINABLE ACCREDITATION AND LEARNING IN INTERNATIONAL REHABILITATION PROFESSIONAL DEVELOPMENT

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Internationalization and globalization of education has produced a very different environment from that envisaged in the 1980s. Many issues remain unresolved in terms of work-based learning, the role of new technologies, e-learning, curricula, and mutual recognition of qualifications. Since the world is becoming “flatter,” it makes sense to consider internationalization for accreditation in professions which reach across the globe. The value of consistent standards for the training of professionals who assist people with disabilities is self-evident. Clear advantages are allowed by internationalization: transferability of educational courses to other programs, levels and systems of education; extension and recognition of credentials which will make it easier for individual graduates of accredited programs to work professionally in other countries; unified and internationalization of ethical codes for treatment of persons with disabilities; the protection of the public from persons with less than standard credentials; and the ability of graduates to benefit from a curriculum which is approved internationally.

In terms of sustainability, internationalizing accreditation standards allows programs to grow and become more relevant beyond national borders. Implementation of these standards through distance delivery methods further enhances the value of these principles, allowing them to become more economically viable, efficient and sustainable. This process offers opportunities for vital collaborations around pedagogy and academic research. These activities will allow programs and persons who graduate from these programs to “transfer” their credentials globally and to enrich the viability of their professions. Internationalization also serves to revitalize the accreditation process in the country where it originates, strengthening its overall sustainability and vigour. Accreditation standards are regarded as a dynamic, reflective process that will only be enhanced by the process of applying and reflecting upon the utility of these principles across geographic boundaries and cultures.

The mission of the Council on Rehabilitation Education (CORE) is to promote the effective delivery of services to individuals with disabilities by promoting and fostering continuing review and improvement of undergraduate-level rehabilitation studies and graduate-level rehabilitation counsellor education programs. CORE’s accreditation process promotes program self-improvement rather than outside censure. A concomitant purpose is to meet the personnel needs of rehabilitation agencies and consumers by providing graduates who have the skills, knowledge, and attitudes necessary to provide rehabilitation services to individuals with physical, mental, and/or emotional needs.

The academic accreditation process presumes that the academic programs seeking review will share and endorse the standards as defined by the accreditation entity. The universality of socially-endorsed and culturally-dependent phrasing and practices must both be understood and appropriate to the community-specific needs of the program, as well as to the individuals ultimately served by those trained in these academic programs. The Commission on Undergraduate Standards and Accreditation (CUSA) is a tenacious arm of CORE. Over a period of years, CUSA has developed academic standards for post-secondary training through the process of defining standards based upon the lived-experience of people with disabilities, educators, and practitioners, sharing those standards with academic and community-practice stake holders and thoughtfully modifying the standards in response to that feedback. The universality of these principles is written within a multicultural context to maximize the flexibility for operationalizing responses to those principles. The distance strategies described in this presentation ensure the full participation at all levels of the self-review/ accreditation process of all participants without exceptions related to physical accessibility.

A coherent policy and practice regarding the education of rehabilitation professionals is essential for the European Union to enhance the opportunities and lives of people with disabilities by providing sustainable approaches to meaningful social inclusion. Our efforts promise to produce significant advances in terms of innovation, adaptability, and original research with far-reaching implications, through embracing the frameworks and networks that have been created, and by applying and expanding them to a 21st century context.

SERIOUS GAMING AS A MEANS TO CHANGE ADOLESCENTS' ATTITUDES TOWARDS SAVING ENERGY – PRELIMINARY RESULTS FROM THE ENERCITIES CASE

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Educating teenagers about energy saving

Policymakers increasingly focus on adolescents to stimulate awareness of sustainability and energy saving. Media channels and institutes offer excellent possibilities to reach youngsters to do so. Nevertheless, non-interactive media channels and traditional education programmes to some extent seem to mismatch with the information-processing styles, communication and social routines of today's young people. Educational or serious games are often regarded as effective tools to reach youngsters due to their engaging character. They are strongly focused on the fun and enjoyment of the gaming experience while the learning elements are not fully obvious or centrally positioned in the game. In the current project, we will test the effectiveness of the serious game EnerCities, developed to positively influence energy-related household behavioural attitudes.

EnerCities: a serious game about energy

EnerCities is a European project that rolls out an online game (www.EnerCities.eu) in which players are challenged to build a sustainable city. The gamer needs to balance *People*, *Planet* and *Profit* while supplying the growing city with sufficient electricity, implementing energy conservation and CO₂ emission measures and minimizing fossil fuel use. The game and related educational materials are freely available for schools and individuals across Europe. Large-scale usage of the game on schools started as from September 2010. Game players and control group members are asked to fill in questionnaires, the results of which will be used to ascertain the game's effectiveness in changing energy-related attitudes and several household energy-related behaviours. Although EnerCities still needs to prove its effectiveness, elearning professionals and teachers already indicated the EnerCities game as valuable by awarding it for "Best Learning Game 2010" (ENGAGE Quality Awards).

Results: higher attitudes towards turning off the TV and taking shorter showers

To test the intervention effectiveness of the game on several energy-related attitudes, a between-participants design was adopted. Looking at the every day life setting of youngsters, several specific energy-related variables form the core of the analysis. The questions asked dealt with respondents' attitudes towards saving energy at home, turning off lights when leaving an unoccupied room, switching off the TV instead of using standby, and taking shorter showers. Towards the end of May 2011, data had been collected from respondents from various European countries.

In sum, it appears that playing the EnerCities game has resulted in higher attitudes towards saving energy at home in general, as well as towards performing specific energy-related household behaviours, i.e., attitudes towards turning off the TV after use instead of using the standby function, and taking shorter showers showed a pronounced, significant difference between the experimental and control group. Regarding attitudes towards switching off lights no differences were measured. The mean scores on the attitude ratings were rather on the high end of the scale. Overall, it seems that saving energy in the household is something that our target group, tomorrow's energy consumers, takes quite to heart. It also appears that these attitudes are not etched in stone, and that serious gaming may well be a successful means to influence them even further.

Strictly speaking, we have to be careful in attributing the effects found purely to the game. The game, after all, was often not played in isolation, but rather in the presence of fellow students or as a part of classroom learning activities with guidance of inspired teachers. However, it can be said that the EnerCities game operated in many cases as the eye-catcher to inspire students about sustainability and energy saving. The positive effects of exposure to EnerCities reported here, suggests that serious gaming has the potential to change public opinion.

EVALUATION OF SERIOUS GAMES, AS A TOOL FOR EDUCATION FOR SUSTAINABLE DEVELOPMENT

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Education for Sustainable Development (ESD), a contemporary field deriving from Environmental Education (EE) aiming at motivating pupils to become actively involved in the learning process for environmental issues, is always seeking for creative pedagogical approaches and methods that could attract and engage pupils to its subject. Games, and specifically computer games, constitute an alternative instructional method that gives players the opportunity to build their knowledge and to develop new skills. The last years 'Serious Games' have emerged as a new category of computer games, that attempt to foster children's experimentation, exploration, imagination through role-playing while experiencing situations of everyday life (such as dealing with sustainability issues). Given that the most sustainability issues are both complex and abstract, pupils need to develop critical thinking and to become emotionally involved into such situations in order to understand the root causes, to clarify the values involved as well as to evaluate alternative solutions. Serious games can potentially offer experience-based education leading to a conscious involvement of children and citizens in general into individual and collective actions towards sustainability.

There is already a plethora of serious games related to sustainability and ESD, even though their use has not been investigated within the school context. However many criteria have been set to assess pedagogical aspects and the usability of serious games in general. This study was aiming at developing a coherent set of criteria as well as at conducting a pilot evaluation on serious games related to ESD. In particular, 34 serious games related to sustainability were examined with respect to three axes: (i) their consistency with main dimensions of ESD, (ii) their ability to promote an organized learning process, and (iii) their usability level. A set of 16 evaluation criteria was developed. The first axis consisted of 7 criteria, attempting to examine to what extent the games: incorporate the three dimensions (environmental, social and economic) of ESD; allow users to construct their knowledge; encourage them to develop their own attitudes/behaviours and to negotiate conflicting values; promote problem solving, systems thinking and active participation of users into the situations that these games deal with. With regard to the second axis, 5 criteria were examining to what extent the games: indicate goals' achievement; whether their rules support a creative playing; promote collaborative learning; allow knowledge assessment and provide the score to users. Finally, the third axis consisted of 4 criteria, which indicated to what extent: there are different levels of increasing difficulty; games' progress depends on parameters set by users; users can save games' progress; representations are realistic.

According to the results of this study, it could be argued that serious games tend to be consistent with ESD's main dimensions, even though there is much room for improving the quality of such games with respect to the holistic approach of ESD, construction of knowledge, negotiation of conflicting values and promotion of problem solving. However, they sufficiently cover other pedagogical aspects of ESD, such as encouragement of users to develop their own attitudes and behaviours, the cultivation of systems thinking and active participation regarding the issues they tackle. Furthermore, the results demonstrate that serious games could promote an organized learning process, even though they should emphasize more on the setting of goals and the evaluation of knowledge. It is important for these games to provide the appropriate conditions, such as giving sufficient instructions for teachers, regarding their introduction to class. On the other hand, there are issues, such as ways of providing the rules and the score, which are sufficiently covered. Finally, serious games demonstrate a quite high level of usability. Apart from the possibility to save the current status on the progress of the player, which is insufficiently provided, they usually have different levels of increasing difficulty. Also they provide users with the possibility of setting the parameters and of experiencing sustainability issues through realistic representations.

Although this study contributes to the development of a new set of criteria that would be used to evaluate serious games related to ESD, further research should be conducted to improve criteria to fully comply with all the qualitative features of ESD. Moreover, there is a great scope for improving the formulation of criteria to become clearer and more objective. The games have been evaluated by researchers within the context of this study. It would be crucial to conduct such an evaluation within a class. Teachers' and pupils' approaches and views could provide a more integrated understanding of how such games actually affect the learning process.

SUSTAINABILITY SCIENCE AND HIGHER EDUCATION: AN ANALYSIS OF A BOLOGNA THREE CYCLE SYSTEM

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The emerging concept of Sustainability Science has its origins in sustainable development as proposed by the World Commission on Environment and Development in 1987. Sustainability science is not a discipline that can be defined simply by the subjects it deals with, but is an academic field characterized by core principles that include holistic thinking, transdisciplinarity, and respect for diversity. It can also be seen as an academic field that points the way to understanding the diverse issues associated with sustainability in a holistic manner and to propose visions and methods toward the development of a sustainable society. Rising concerns about sustainability are apparent in a number of societal sectors, including the political and economic sectors, universities and the public in general. Reflecting this interest and concern, sustainability science is becoming a distinctive research field.

The aim of this work is to conduct a content analysis of a complete three cycle system (bachelor/master/doctorate) according to the Bologna Process of European higher education, to evaluate if and how concepts of sustainability science are put in practice. This cycle system is offered at Universidade Aberta (UAb), Portugal according to a b-learning pedagogical model in the scientific area of environmental sciences. A description and evolution of the curriculum development of the courses will be conducted. A list of criteria/competences for sustainability science within e-learning was developed and its application to the UAb three cycle system discussed.

We therefore defined four categories aiming to characterize a Bologna three cycle degree system which aims, among others to develop skills in the field of education for sustainable science (first cycle – Bachelor degree in Environmental Sciences, second cycle – Master degree in Participation and Environmental Citizenship, third cycle – PhD Social Sustainability and Development). The categories are presented at four different levels: principles, practice, action and reaction.

The analysis shows that the development of sustainability competences in this three degree cycle system at UAb, increases from the 1st to the 3rd degree. In terms of the 1st cycle it should be noticed that the issues of ESD are more addressed on the third scholar year and vary within the three minors offered: (i) environment and health, ii) conservation of natural heritage and iii) environmental management and sustainability. In the first year of the 1st degree more classical hard science courses are given where sustainability concepts are less applied; also almost only in the minor of environmental management and sustainability more concepts the ESD categories are applied. In addition, according to the pedagogical model of UAb, the 1st cycle, compared to the 2nd and 3rd has a less collaborative and cooperative learning since the continuous and final assessment are mainly individual. Concurrently, there is an increase of inclusiveness of the social sciences involved in sustainability as one moves up from the lower to the higher level of education.

In the present period of harmonization of the higher education system in Europe, introduced by the Bologna Process, we need to further analyze if the learning process to sustainability at UAb is comparable or converging to similar competencies and outcomes, of similar programs in other European distance learning universities.

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SUSTAINABLE USE OF TECHNOLOGY FOR EFFECTIVE LEARNING IN IRELAND

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In this paper the authors discuss two aspects of the relationship between technology and sustainability that are relevant to the Irish education system, illustrating their points from literature and from work carried out at their research centre, the Centre for Research in IT in Education (CRITE). It is a time of severe curtailment of national budget and increasing awareness of environmental issues, neither of which factors, of course, is unique to Ireland.

The relationship between technology and sustainability is not an easy one to evaluate. The debate about the pros and cons of technology continues, as it is difficult to be confident when a technologically-based activity is in fact environmentally sustainable. Moreover, educational innovation is required to be sustainable in another sense; appropriate initiatives need to become integrated into the education system, rather than being short-lived and having little permanent effect. Additionally, students' learning needs to be sustainable in the sense that key skills and appropriate knowledge should persist throughout life. In this paper, these different forms of sustainability are referred to as relevant.

Therefore, two issues are explored for which technology use within education facilitates the education process and can be construed as sustainable (in any or all senses of the word as considered here):

- Effective learning – addressing a widely recognised problem in education, the need for learning to be deep (hence, sustainable and ultimately sustained) rather than surface;
- Efficient use of resources – considering creative approaches to education in the light of students' increasing ownership and use of the newer technologies.

In exploring the sustainable use of technology for effective learning, a range of different initiatives which focus on engaging learners and the efficient use of resources is described. No one of these can resolve all the problems associated with increasing technology use in education. However, given the scarce resources currently available and the Irish government's drive to increase ICT in classrooms, these possibilities could offer a cheaper and more sustainable method of fulfilling its target of providing technology-enriched education.

RETHINKING E-LEARNING IN HIGHER EDUCATION AS A SUSTAINABILITY CONTRIBUTOR

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Sustainability as an e-learning strategy

Sustainability as a concept refers to the importance of promoting sustainable development in view of ecological, social, cultural and economic aspects, underscoring the need for civil responsibility in recognizing how human actions affect these systems and intervene on their interconnections. Strategies for sustainability in higher education may involve promoting learning and behavioral outcomes regarding all dimensions of sustainability (“education for sustainability”), but they may also involve the operation of educational institutions per se (“sustainability of education”). Even though the international literature refers to many aspects of e-learning sustainability (e.g. learning platforms & software, institutional – organizational issues, e-learning materials, pedagogic approaches, participants’ skills, etc), we here choose to focus on the three basic aspects of the e-learning strategy (technological, pedagogical and organizational) and on their relationship with the main sustainability goals. We discuss these key aspects of sustainability and of e-learning and conceptually reconstruct their relationship on a two-dimensional framework as follows.

Table 1 Sustainability Constructs in the e-Learning setting – 12 Domains of Analysis

		Sustainability Dimensions			
		Ecological	Social	Culture	Economic
e-Learning aspects	Technological	E/T	S/T	C/T	Ec/T
	Pedagogical	E/P	S/P	C/P	Ec/P
	Organisational	E/O	S/O	C/O	Ec/O

Approaching e-learning (evaluation) attributes from the sustainability perspective

Evaluation of e-learning in particular, tends to focus on individual learner variables, learning environment variables, contextual variables, technology variables, pedagogic variables within the specific context. We here propose to reconsider e-learning evaluation by redefining e-learning attributes (cost-benefits, weaknesses-strengths, opportunities-threats, etc.) in relation to the sustainability concept, as depicted in the two-dimensional framework above. More specifically, we summarily re-conceptualize the major e-learning attributes which we extracted and codified through an extensive bibliography review on continuous learning and adult education theories, on pedagogical methodologies and particularly on constructivism, on e-learning and open-learning evaluation. The main objective of this review was to identify (evaluation) attributes of e-learning programs derived from the main theoretical domains and to associate them to the major dimensions of sustainability, in order to reveal the importance of e-learning in securing sustainable education and socio-economic development (see the following indicative examples).

Benefits / Strengths / Opportunities of e-Learning and their relation to various Sustainability Dimensions

Easy and flexible development and/or adaptation of learning content and learning material. Quick reviewing and correction procedures.	E-Ec / T-P-O
....	

Costs / Weaknesses / Threats of e-Learning and their relation to various Sustainability Dimensions

Learning difficulties stemming from the lack of natural, in-vivo dialogue, in and out of the classroom.	S-C / T-P-O
....	

We stress that this matching scheme is not the only one possible and that any such effort mainly depends on the objectives of the specific case under evaluation and its framework and goals, as well as on how broadly one conceptualizes “sustainability” within this framework. The objective of the new sustainability-driven approach to e-learning evaluation is to secure sustainable education and socio-economic sustainable development. The main policy implication is pointing out the need and the requirements for setting new standards in designing, implementing and evaluating e-learning programs.

METHODOLOGICAL ISSUES OF SUSTAINABLE LEARNING

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Lately the word 'sustainable' has been increasingly used in educational contexts as well, as in knowledge-based societies the ability of learning by using our inner and outer resources (e.g. time, energy, or respectively paper etc) in an effective – sustainable – way is of utmost importance. At present we tend to overuse our resources (less relevant content, less effective environments, teacher-centred methods, obsolete tools etc). However, sustainability requires the transformation of school environments, upgrading the methods and tools, and changing students' approaches to learning.

The Department of Technical Education, BME being a teacher training institute and aiming to be at the forefront of changes started a survey with a special target group: the first batch of mentor-teachers, practicing teachers who become the first qualified mentors. Choosing this specific target group has different reasons: first, they can evaluate the teaching/learning process from two different points of view, that of teachers and that of students as well; secondly, mentors will be the key persons in the teaching practice of teacher trainees; thirdly, because their course is a blended course; the mainstream instruction is completed with the use of a learning management platform (Moodle) to provide access to course materials, to upload assignments and to boost course-related learner-learner and learner-teacher communication.

The objective of the survey was to reveal:

- Whether there is a substantial difference between an ideal model of education (from the viewpoint of sustainable learning) and the real situation,
- Whether there are any signs of the transformation of the dominant pedagogical culture,
- Whether the teachers are aware of their new roles,
- Whether there are signs of the students' adoption of new approaches to learning,
- Whether there is any mismatch between the students' expectations and the teachers' (and the pedagogical institutions') attitude to the changes of the pedagogical culture.

A questionnaire of five-point Likert-scale items to collect quantitative data was applied. It consisted of five main sections: 'Process of learning' (9 items), 'Management of learning' (9 items), 'Cooperation during learning' (8 items), 'Feedback and reflexion' (5 items), and 'Methods and tools' (23 items), primarily focusing on the methods and tools.

The findings suggested that the most important part of the questionnaire was the section on methods and tools, as the answers of the items of the first four sections differ in a small degree between the 'Ideal model' and the 'Real situation', which justified our focus.

Although this survey is not representative and the results are as yet partial, the findings are of key importance as they reveal the necessity of changing the dominant pedagogical culture of the teachers and initiating changes of the students' learning cultures.

- Each formal and non-formal course should sense and respond to the students' changing needs in the field of content and the methods and tools of learning, as students already have priorities, but are not taken into consideration by educational providers,
- Each formal and non-formal course should have a well-designed and definite strategy for the changing of the students' learning culture,
- As the new methods and tools are being integrated in the learning culture, blended learning is a viable option and should be mainstreamed to use inner and outer resources effectively and efficiently.

Education should further changes to make sustainable learning mainstream.

THE CONTRIBUTION OF ENRICHED COMMUNICATION AND COLLABORATION MEDIA TO SUSTAINABLE E-LEARNING: A CASE STUDY

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Sustainability goals in the e-learning context are better served by addressing the need for alternative modes of e-learning based on personal needs, through supporting online communities and innovative forms of communication and collaboration and recognizing the nature of newly emergent forms of typical and non-typical learning (e.g. virtual worlds). More specifically, aiming to promote sustainability goals in the e-learning context, an important issue is always the anticipated “dialogue” as described by Moore (1991). Addressing this issue, we designed and carried out a case study of a learning institution’s attempts to restructure an e-learning postgraduate program by “enriching” the technological media used and the interactions supported, in order to provide a richer educational experience. Through qualitative and quantitative methods of research we collected multiple sets of data, the analysis of which have showed that the main theoretical hypothesis of this study can be supported, namely that one medium is not enough if we want to secure various interaction patterns in a distance education program, while particular media are more suitable than others for each kind of interaction in an e-learning context.

In comparing the traditionally Learning Management System (LMS) environment used by the program during the last 6 years, with the recently introduced Virtual World (VW) grid, the students studied believed that the “two-way communication” reported by Garrison and Shale (1987), is better served by the communication tools of the VW. Even though students evaluated the LMS in general rather positive and found it easy to use, they expressed only a moderate preference for its communication / collaboration for learning capabilities, while, on the other hand, they valued more the oral communication and group work and collaboration tools offered by VW. And this was so, although students’ self-efficacy with the use of multimedia means, especially in the VW environment, remained low – because of a very steep learning curve for the familiarization with virtual worlds (Davis et al., 2009). Students’ expressed preference for the “enriched” VW environment for their communication and collaboration is in line with Media Richness Theory approach which argues that “richness” is a key feature of a medium, as it enables immediate feedback, message personalization, language variability, etc. (Daft and Lengel, 1986; Newberry, 2001). More specifically, although students in general use text-based media of communication to a greater extent and they are experienced enough in such use, after their exposure to both environments, they come to describe interacting in VW as a “real” communication. That is why they chose to use this platform, even if they have no educational obligations assigned in it. This suggests a possible need to reconsider the position of Ruberg, Taylor and Moore (1996) that lack of non-verbal forms of communication is not always negative and in online environments people develop and use alternative ways of communication. It is, on the other hand, more in agreement with Mehrabian (1971) that, the richest the medium, the more verbal and non-verbal information it can carry, thus affecting the interaction among people.

Our data are not enough to support the Thurlow, *et al.* (2004) conclusion that, under conditions, relational quality in CMC will be the same as face-to-face communication, but in examining the main reasons of students’ preference of VW communication/collaboration attributes (useful in socializing with peers, supporting intimate, immediate and adventurous communication, etc.), we did find that the students affirmed that although the environment is virtual, the relations, collaboration and activities in it were for them real. We also found that the sense of community is maintained and enhanced in VW setting. And in adding to Walther’s (1994) suggestion, that the interaction people have outside the virtual environment affects the way they communicate online, we indicated that also the opposite seems to be true, as students reported that “connecting” and being familiar with other users in the VW has positively affected their familiarity and communication in real life.

According to the sustainability in e-learning perspective, we could support that our findings are in line with suggestion of Garrison, *et al.* (2003) that the new media offers opportunities for collaborative learning, regardless of the limitations of time and space and this is very important in the case of mature students (adults with work and family obligations). Despite the fact that the adult distance learning model was traditionally based on asynchronous forms of communication, requirements for collaborative and socially constructed learning and the ability of the new media to provide for this, can gradually come to alter the priorities of educational institutions. All these tendencies, of course, need to be further researched on a larger scale, as learning, educational and sustainable developmental needs and technological change give rise to new possibilities and new strategies for educational institutions world-wide.

POSITIONING THE OER BUSINESS MODEL OF OPEN EDUCATION

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OER and Open Education as enablers to unlock the learning potential

The focus of Obama's 2011 State of the Union to "out-innovate and out-educate and out-build" the rest of the world emphasized once again how important education is. At the Davos World Economic Forum it was stressed how the lack of adequately educated people hinders prosperity and constrains the economic growth in the near future. The Open Educational Resources (OER) movement provides, since more than a decade, new ideas on how to generate and share resources for educational use by a large audience for a variety of educational purposes. The OER vision has a great potential to find structural solutions to existing educational problems. It does so by opening access to educational resources. In this way the OER strategy offers a way to enable people across continents and organizations to get the education needed to transform their talents into effective personal and professional growth.

Exploration of key requirements for sustainable OER business models

Sustainability is a key requirement for the OER business model. Education in the 21st century has the character of life-long continuous education. First initiatives to realize OER based education have been organized as dedicated sponsored projects. A format suited for frontrunners initiatives. Crucial for the future of the OER approach will be its ability to move to structural implementations with widespread and large scale use. To bridge existing education gaps and release its educational potential the question is whether we will be able to combine the OER vision and commitment with a suitable and sustainable business format for OER. In essence the question is not so much whether a specific OER project can be funded adequately as whether we can create an underlying business model capable to serve as a flight deck from which necessary (OER based) learning activities can be launched. Learning activities inside and outside educational institutions and within and across organizations at every moment when learning is needed in personal and professional's careers.

To explore the requirements of sustainable OER business models for lifelong learning we characterize the scene of OER business model thinking. Existing models are revenue models. Since they immediately focus on the earning capacity of OER, the complexity of the underlying business processes and actors are overlooked. In this paper we argue that a sustainable business model for OER should take into account the interactions and relations between all actors involved, the internal organization of the suppliers of open educational resources and financial flows in relation to the needs the users.

Based on our literature review, investigating new approaches to business models and motives to use and provide open educational resources, we show how the application of the OER paradigm radically changes not only learning itself but also the interaction and relationships between all actors involved. Both "learner" and "teacher" for example can act as creators and users of educational resources. The use of OER also changes the relation between educational institutions, between designers and service providers. These changing relationships lead to a new perspective on sustainable business models for OER-based learning. We provide a first glance at essential ingredients for viable OER business models capable to become sustainable living realities for today's lifelong learning needs.

Towards OER based learning networks

Finally we describe how heuristics from learning networks and peer-based co-creation can provide input for the educational design of OER based learning in communities to successfully stay alive and in business as long as the learning needs exist.

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SOME ISSUES AFFECTING THE SUSTAINABILITY OF OPEN LEARNING COURSES

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Research focus

While there has been much excitement in recent years about the potential of Web 2.0 principles, open educational resources (OER) and cross-border educational programmes to catalyse enhanced pedagogies, the world economic downturn has focused attention on the sustainability of open learning initiatives. Can making content more widely editable, reusing learning resources and sharing responsibility for course delivery result in higher production speeds, better materials, and lower costs? This paper reports on research into this question.

A framework supporting Open Education and Open Educational Services

A hybrid organizational framework is being explored, been developed and piloted within earlier research projects (Meiszner, 2010; Meiszner et. al., 2008; Meiszner, Moustaka & Stamelos, 2009; Weller & Meiszner, 2008). This framework posits that OER constitute just one element of Open Education, and that OER should be embedded within an overall Open Educational Service concept. These services are characterised by: independence (by-and-large) from existing physical educational infrastructures; self-organised community-based learning processes; community-based production of learning materials; and flexible learning and teaching roles.

The framework pays close attention to retaining the artefacts created by learners, capturing learning processes and activities, and embedding all of this within the course in a way that enables others to re-experience later. Anyone interested in the subject can participate (“inviting in”) and the outputs of such participation are shared (“sending out”).

The openED 2.0 initiative

Seven European organisations have collaboratively generated a Free/Open online business studies course, based on existing freely available materials. There are professional and academic strands. The course consists of 10 modules, constituting 14 weeks of study, at approximately 5 to 15 hours per week. The course has been run once so far; further rounds over the next 18 months will make the materials more widely editable and will create the conditions for third-party charging for facilitation, assessment and certification.

Questions being addressed include: How do materials generated by such open initiatives develop over time, and what are the drivers? What learning takes place, and what are the drivers? What issues arise associated with cross-cultural and multilingual settings? How are differences between formal and informal education exhibited? Methods of data collection include website logging; observation of forum interactions and live chat sessions; surveys of designers and participants; semi-structured interviews; and learning diaries.

Results

The preliminary results reported in the paper relate to three aspects affecting sustainability:

- International and inter-institutional curriculum design: with issues including native language diversity, the limits of student support and pressures against educational coherence.
- Designing learning for international online participation, with issues including timetabling challenges, choices about communication technologies & varying levels of participant commitment.
- Reuse of OER within an open online course, with issues including audience needs and author motivations.

This work suggests that adopting an Open Educational Service approach to the design of online courses introduces much more complexity than simply re-using OER. More research is needed, particularly into the development trajectories of materials, of participant interactions, of the quality of participants’ work, and of stakeholder communities.

THE LIVED EXPERIENCE OF SUSTAINABLE LEARNING: THE LECH-E OER PROJECT BRIDGING FORMAL AND NON FORMAL LIFELONG LEARNERS

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The United Nations Decade of Education for Sustainable Development (DESD, 2005-2014) aims to integrate the principles, values and practices of sustainable development into all aspects of education and learning. In accordance, many educational institutions, universities in particular, have been actively striving to fulfill these aims into their activities at all levels of formal, informal and non formal education. *The Lived experience of climate change: e-learning and virtual mobility* (LECH-e) is an Erasmus-funded project that intends to support those efforts by creating a European community of scholars, students and citizens who collectively may contribute to the United Nations decade on education for sustainable development.

In order to achieve this goal, the LECH-e project has been developing learning resources on the topic of climate change that will be openly accessible on the web for higher education institutions and the wider world public to use and adapt. Higher education institutions are in fact free to integrate these resources into their formal programs and non-formal courses. In this paper we depict the open learning strategy implemented by the LECH-e partnership and how it can contribute to widening participation in education for sustainability, specifically in climate change related issues.

We believe Open Education Resources (OER) has the strong potential to support the largely missing component in the European higher education system: OER for widening participation and the inclusion of lifelong learning for the 25+. Within the LECH-e Consortium, OER is therefore designed in a way to increase participation in Lifelong Learning through providing open access for people of (mostly) all ages, including those with special needs and disadvantaged groups, regardless of their socio-economic background. OER created within LECH-e particularly stimulates the adoption of pedagogical, technological, organizational frameworks for strategic implementation by individual institutions, as well as by collaborative international partnerships. Within the LECH-e Consortium the starting point for each institution is to connect properly with one's own development stage that is already in place: awareness raising – strategy building – the design of pedagogical, technological, organizational models.

Many Open Universities have been developing new OER strategies, exploring viable OER business models in the area with the support of external partners. Innovative aspects of this are: self-learning pedagogy, ICT innovation, accessibility, sharing and reproduction of content. From the recent experience, it has been learnt that the expertise of these frontrunners combined with the LECH-e project approach used, can lead to an important impact in diffusion of OER in the domain of sustainable development, and for the challenge of Climate Change particularly. Synergies are currently harvested in the LECH-e Consortium between individual partners, as well as through dedicated products, which will lead to an increased multiplier effect.

The LECH-e project will promote the sharing and use of the produced e-learning materials. To allow free use and modification in academic institutions and other organizations (in European and other countries), the materials will be registered under a creative commons licence. For long-term sustainability it is important to gather evidence of the impact of the OERs through tracking of their use and versioning. It will be part of a pilot study to examine ways to capture and structure user commentaries on the material.

The e-learning learning materials are therefore designed to combine knowledge of the global mechanisms of climate change with local experiences of impacts. In accordance, special care will be taken to search for synergy with the European Regional Centres of Excellence networks and with other local bodies who work on climate change, and who are most likely to benefit from the knowledge produced. In our view this approach at OER contributes to disseminate a much more socially sustainable notion of environmental education, because it manages to involve formal, informal and non formal learners in the production, reproduction, dissemination and preservation of knowledge on Climate Change.

OPEN EDUCATIONAL RESOURCES: REUSABILITY OF A MEDIA WIKI TO PROVIDE SUSTAINABILITY IN A BLENDED LEARNING ENVIRONMENT

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A high number of students at the universities – especially in economic and social sciences – are professionals or have to fulfil social responsibilities like taking care for children or elderly people. Another group of students can be identified as distance students. They live so far away from university that they cannot travel to the campus every day. For this reason the service agreement between the universities and the federal ministry tries to accommodate especially these groups of students; in conformity with this agreement universities have to offer special programmes for working students. These programmes address all students who need flexibility concerning time and place of learning.

The Johannes Kepler University of Linz offers a special programme for bachelor students of economics, business or social sciences called MUSSS (Multimedia Study Services Social Sciences, Business and Economics). This programme covers about two third of the courses of the bachelor studies in economic and business; several courses of social sciences and business informatics are part of the programme, too. The programme MUSSS is based on a blended learning concept. It consists of a combination of elements from both, the multi-media distance learning programme and on-campus courses. This study programme was designed to allow the target group of professionals, persons with social responsibilities or distance learners to attend courses at the university. The target group needs a high flexibility concerning time and location of learning. Weekly on-campus courses do not fit to their specific needs concerning their learning settings or their preparation time for the exams.

The programme MUSSS is part of a series of activities in the strategy of lifelong learning. The EUA has supported and actively promoted the development of the “European Universities’ Charter on Lifelong Learning” in 2008. Europe’s universities are assisted in developing their specific role in this context. The charter places all types of higher education – formal, non-formal and informal – in the framework of lifelong learning.

This paper deals with the programme MUSSS as a part of the Johannes Kepler University’s strategy on lifelong learning. The major focus is placed on part-time education for a greater variety of learners. The distance learning elements of the programme are partly based on open educational resources (OER). It shows how OERs are part of the lifelong learning strategy and how they contribute to the sustainability of learning. Moreover, this paper analyses the use of OERs in an information processing course which were developed for the programme MUSSS. The OERs are used in the blended learning course as well as in the on-campus courses. The concept of sustainability covers the focus on the product, the production process and the consumption of the product. The use of OERs contributes to all foci of sustainability. The sustainability of learning is an important part of lifelong learning.

A case study shows various possibilities of producing and reusing content. The open content concept using a Wiki means that subject matters have to be entered and imported only once, and can then be updated easily by all authorized users regardless of where they are. The knowledge can then be used and reused by everyone with Internet access. Besides, it is possible to share and give out the content in many different ways (offline in form of an automated script, as an audio file, portable on a flash drive) serving especially those learners who need flexibility in time and/or space.

The open education movement makes a contribution for sustainability of learning and teaching in particular concerning lifelong learning. Learners, who depend on flexible learning settings, profit from OERs. On the other hand lecturers can make a collective/collaborative investment of time, energy and money to create new learning objects and reuse them. The concept MUSSS provides a flexible way of learning, so that there is – besides other advantages – no need to travel to university.

NETWORKED LEARNING AS A PROCESS OF IDENTIFICATION IN THE INTERSECTION OF COLLABORATIVE KNOWLEDGE BUILDING – FOSTERING CREATIVITY, AWARENESS AND RE-USE OF OER

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Within professional education a recent shift has taken place. Professional education has moved from specialized education and update of professional knowledge, over competence-based education, to, recently, education with goals such as creativity, innovation, entrepreneur- and entrepreneurship. OECDs Centre for Educational Research and Innovation (CERI) reveals this tendency. The core idea here is that education, in a very goal-directed way, supports initiatives, which – in turn – results in added-value to society.

As such, the educational shift may be interpreted as related to societal change and politically influenced reforms. Parallel to societal changes taking place through reforms (and not revolutions), it still seems widely accepted that education sticks to old, past and traditional types of learning goals, while at the same time stronger attention is given to new and future innovative learning goals. In relation to objectives of competencies, attention is given to creative, innovative and action-oriented types.

This paper addresses the role of OER in design of innovative, networked learning processes in diverse educational contexts of higher education, continuing education and in relation to lifelong learning. Our elucidation and discussion of OER are targeted towards educators and educational designers and take their point of departure in the intersection between 1) a view of knowledge production and change in action patterns as a result of education, 2) a view of dialogue as tool for negotiation of meaning in learning, and 3) a view of OER as potential resources and triggers of pedagogic/strategic awareness in educational design. The three phenomena are viewed and discussed in relation to societal and political reforms. The claim of the authors is that there is a strong need for a new concept of learning. A learning concept that unfolds in collaborative, intercultural and trans-disciplinary processes of identification through dialogue and negotiation and in relation to use and re-use of OER. In essence, these processes imply identification of values and unfold with participation of designers, teachers and students at different points in time. They evolve continuously.

The paper concludes with a suggestion for a view of networked teaching and learning as, essentially, processes of identification (inspired by Sorensen and O'Murchú, 2006, and their MMD-architecture) adapted to and directed towards the unknown future of networked teaching and learning.

SUSTAINABILITY OF OPEN EDUCATIONAL RESOURCES – PROVIDING TOOLS AND SERVICES FOR ADAPTATION: THE OPENSOUT EXPERIENCE

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Sustainability of Open Educational Resources

How can we achieve sustainability of Open Educational Resources (OER)? OER are digital objects which can be freely accessed and used for educational purposes. Currently, there are millions of learning materials on the Web, some structured in repositories and databases, some just hidden on the Web as part of personal homepages. This seems very promising as it is possible to re-use existing materials and adapt them to specific needs. But the OER initiatives have not yet taken off. They neither achieved a critical mass of contributors nor have suitable business models been created in the large. Some barriers seem to remain; especially barriers that are related to lack of trust and awareness towards OER, but also regarding lack of support for individuals to adapt these materials for their own needs. In this paper we describe how the European project OpenScout addresses the latter issue: OpenScout provides access to OER for management and develops tools and services around OER to adapt and re-use the material to educators' and trainers' own context – thus creating sustainable, collaborative usage settings.

The OpenScout Approach

OpenScout (www.openscout.net) is a European project which provides integrated services and tools in the Web that enable users to easily find, access, re-use and exchange open content for management education and training. Management is a large education and training business field in Europe. Already existing OER in management have a high potential to address the increasing training needs of employees and students. With its technical infrastructure OpenScout wants to remove access barriers, foster re-use and adaptation and thus establish a sustainable community of stakeholders that opens up their management related content and applies OER in real contexts of use. The OpenScout technical infrastructure addresses the following two phases:

Making Open Educational Resources Accessible: OpenScout inter-connects existing distributed management content repositories to form a federated metadata content base. Furthermore, OpenScout provides to end-users integrated Web services for easy access to the content federation. The services contain among others competence based search, browsing and filtering, keyword translation, download, upload, content enrichment, social metadata and other functionalities. Additionally, the user is presented with recommended tools for working with a selected resource. To realize the services OpenScout builds on open standards based technologies (OAI-PMH for harvesting, a metadata scheme based on LOM, SQL / SPI for querying / content enrichment, all connected through a standards based Web service infrastructure). Users can access the services through the OpenScout Web portal (www.openscout.net/demo) or can integrate parts of the services through a Web-based search Widget (www.openscout.net/demo-widget) into their familiar learning environments.

Supporting Re-Use through Tools and Services for Adaptation: One of OpenScout's central aims is to support the re-use and adaptation of the resources provided through the federation of contents. To foster this, OpenScout offers a tool library that delivers the tools, brings information about the tools as well as user experiences around those. Various types of tools are suggested: *adaptation tools* include editors for modifying the contents, as well as tools for the annotation, translation, re-assembling and design; *collaboration tools* are used to create resources by collaborative effort, e.g. Wikis, Google documents; and *communication tools* support the creation and design of contents, e.g. video conferencing or forums. Guidelines for re-using and adapting OER complement the offerings in the tool library. Tools can be rated and commented by users within the tool library. OpenScout currently implements integration mechanisms which do not just provide users with a list of tools, but also associate the tools with particular adaptation tasks and scenarios, monitor their usage, and provide users with recommendations. Users can access the initial version of the tool library (built with the social networking framework Elgg) at www.openscout.net/tool-library.

By providing easy access to adaptation tools OpenScout expects to increase the number of actively contributing users. According to first experiences this can support the sustainability of OER in a collaborative or exchange model.

OER, RESOURCES FOR LEARNING – EXPERIENCES FROM AN OER PROJECT IN SWEDEN

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This paper aims to share experiences from a national project in Sweden on the introduction and implementation of Open Educational Resources (OER) in higher education. The project, *OER - resources for learning*, was part of the National Library's Open Access initiative and aimed at exploring, raising awareness of and disseminating the use of OER and the resulting pedagogical advantages for teaching and learning.

The background to the project is described placing it in the context of current theories and developments in educational technology. In particular the intimate relationship between the growth of open educational resources and current educational theories such as connectivism is stressed. With so much educational content already available on the net the teacher's role is fundamentally changed; from being a content provider and fountain of knowledge to being a context provider and facilitator. It is essential that we see the development of OER in such terms and not as simply a cost-effective method of delivering lectures.

The project's activities are described, focusing on the dissemination of good practice and awakening interest among educators in Swedish higher education. Central to the project's activities were a series of regional seminars which all featured a combination of multi-site meetings combined with online participation. This combination proved highly successful and extended the reach of the project. In total the project reached around 800 participants at its events and many more have seen recorded sessions.

The paper concludes by raising several unresolved issues that were beyond the scope of the project but which are absolutely crucial challenges facing the OER movement today. Firstly, the development of open educational practices is the natural extension of OER whereby national and international policies and strategies are established and where the use of OER is officially encouraged, sanctioned and developed. Secondly, the issue of metadata is crucial in that existing OER are often poorly tagged and hard to search for. The future of open learning depends on video and audio material being as easily accessible as text-based material is today. Thirdly, the reuse of OER must be stimulated by ensuring that material is created with secondary use in mind so that it can be easily adapted by teachers in other countries and contexts. Finally there is the issue of inclusion whereby local OER production is encouraged and the importance of material being available in languages other than English.

IDENTIFYING E-LEARNING RESOURCES FOR REUSE

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In traditional face-to-face education, in the past, learning materials and –scenarios usually have been designed for a regionally limited environment: educators and learners belonged to the same national/regional and cultural area. An export of learning materials or -scenarios to other nations/regions in the world was an exception. Although student exchange programs brought foreign learners to our schools and universities, those guest students were understood as service recipients: Thus, they were expected to deal with what they received. In such a regionally limited setting, an adaptation of educational methods or materials has not been necessary. As Kerr (1982, p. 152) states, teaching and actions of educators and students in traditional face-to-face education in Europe have not significantly changed since medieval times.

According to the Bologna Process, which was initialized in 1999, higher education changed from a regional/national to a European scenario. The basic aims of the Bologna Process were reaching more transparency of educational programs and degrees, higher recognition of academic records, and higher mobility of the students. Schönwald et. al. (2006) are of the opinion that the Bologna process requires a significant rethinking of current teaching structures, units, methods, and evaluation. Regarding the mobility aspect, which would be the relevant one for upcoming adaptation needs on learning scenarios and resources in the face-to-face education, in Germany, no significant change has been monitored between 2007 and 2009 (Heublein and Hutzsch, 2009).

In contrast to the still regionally limited face-to-face education, e-learning can easily also be distributed to regions within and extending the European context by using the Internet: *'The most valuable benefit of e-learning is its potential ability to deliver high-quality instructional services to all learners regardless of location, family or cultural background, or disability.'* (NASBE, 2001, p. 5) However, for now, the reality seems to be different:

We conducted an expert-study (Delphi) in Germany, Austria and Switzerland at the end of 2010 on special requirements, students have to match in e-learning scenarios, which showed that e-learning actually also is implemented within a regionally/culturally limited scenario: Just one of the 16 experts stated that in the recent settings, cultural competency is a basic requirement or even helpful. Acceptance of cultural differences and English language skills also had a minor relevance. In-depth-interviews we conducted afterwards involving some (four) of the experts after the Delphi-study was finished and evaluated, the questioned experts stated that they consider a broader international implementation being extremely complicated because of possible necessary but unknown adaptation requirements. This confirms Schmidt (2005), who wrote that a successful implementation and reuse of already existing learning situations in a global setting strongly requires taking the context of the students into consideration. Otherwise, cultural, didactical or other conflicts may occur and lead to a large number of frustrated learners: in particular the reuse of already successfully implemented learning scenarios may fail.

How can we as producers (authors) and providers of learning resources, support educators to manage those adaptation-related challenges and thus, foster the reuse/sustainability of learning resources? This paper focuses on the decision processes on which resource may be appropriate for the targeted context and which aspects are to be considered when determining possible adaptation needs. We will show that the reuse of e-learning resources is possible and a feasible alternative to re-authoring. With our research, a major gap has been mastered by finding a method to determine differences between contexts. However, as long as necessary data from the various learning-contexts are not publicly available, this process still is too cost-intensive. The tools to collect the data are now available. As we have found out, it is almost impossible to determine the contextual data without being part of the related contexts; both, support and cooperative work are highly welcomed.

If the reuse of learning resources practically and economically gets manageable, expenses for education can be lowered and a crucial step in the direction of a fairer trade in (higher) education is made. E-learning has the potential to overcome borders and particularly to support the education of people in regions with extreme low population density.

ADDED VALUE OF TEACHING IN A VIRTUAL WORLD

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The lack of ICT use in teaching is a predominant issue in secondary schools throughout Europe. The AVATAR (Added Value of TeAching in a VirTuAl WoRld) project¹ aims at enhancing the level of ICT use in education by providing teachers with relatively new methodological and pedagogical tools. Virtual Worlds (VWs) can be used as an innovative teaching tool that motivates and engages pupils and at the same time enhances their learning by incorporating a collaborative learning, a learning through reflection and a learning by doing approach.

In the first project phase, research and comparative analysis have been conducted on existing VWs platforms assessing the quality of their teaching/learning features and functions. The analysis also focused on the user friendliness of the platform and the important aspect of access for pupils below the age of 18. The VW that most optimally supports the educational design of the project, namely Second Life, has been selected for the subsequent phases of the project. This had the advantage of being a more stable development platform and provides rich educational resources which already exist in-world. During this phase, learning theories and best practice within the field of virtual worlds teaching and learning was also studied to learn from existing practice. Best practices and tips for teaching in Second Life, didactic methods, learning perspectives and educational case studies were compiled.

Phase two of the project was to design a course for secondary school teachers on teaching and learning in VWs based on the results of phase one. The course covers educational design in VWs and the management and construction of virtual objects and learning environments. The course is divided into two main parts: the first dealing with teaching theoretical knowledge (e.g. the methodology of virtual world teaching, overview of the most common V-platforms and their features, how to engage and stimulate students) and practical knowledge (e.g. basic skills for constructing V-objects and how to realize an efficient V-lab and materials); and the second part where teachers realize and experiment the project work with small group of their students. The course learning outcomes are relevant to European Qualifications Framework (EQF) Level 5.

From the technical point of view, an E-learning and a V-learning environments have been implemented as an essential step in the course preparation. Individual builds/locations have been built in Second Life as part of the AVATAR project estate. The AVATAR Technological Team worked closely with the Didactic Board since the technological design of the course is based on the course contents and methodological features.

A pilot experiences have been launched in the E-platform and V-Platform both with teachers from secondary schools. Almost 120 teachers from all partner countries (i.e. from Austria, Bulgaria, Denmark, Italy, Spain and United Kingdom) have been selected for the experimentation phase. During the experimentation phase we created a roadmap of tasks adopting the consolidated Gilly Salmon's model for teaching and learning online, focused on tasks and processes rather on learning objects and expecting participants to commit for a reasonable amount of time (approximately five hours a week, for 17 weeks). We planned regularly meetings and we established clear guidelines, tasks and expectations.

The first results obtained from the experiences and pilots are promising. The added value of teaching in a virtual world points towards cultural, linguistic, interpersonal and motivational benefits. We are observing that participants are dealing with a challenging, motivating and innovative learning environment which offers them opportunities for real-life learning. Virtual worlds, embedded in an appropriate pedagogical approach, seem to contribute to enhance collaborative learning, learning by reflecting and learning by doing approach as well as learner autonomy and social empathy. Participants are sharing their experiences of enjoyment and motivation and a lot of ideas for the project work have been shaped. The combination of this positive attitude, together with the educational potential these environments have, can lead to very motivating, enriching and satisfying educational experience as the results seem to indicate so far.

For more information see <http://www.avatarproject.eu>.

¹ The AVATAR project is co-funded by the European Commission – Education, Audiovisual and Culture Executive Agency, Lifelong Learning Programme Comenius – project number 502882-LLP-1-2009-1-IT-COMENIUS-CMP

BLENDING CULTURE: CREATING A SYNERGY BETWEEN DIGITAL AND VISUAL COMPETENCES IN EDUCATION

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Digital literacy has come a long way from training programmers and users to educating creators and communicators. The skills and knowledge we acquire while leaving a smaller carbon footprint are equally relevant for the development of visual skills and abilities, so it is worth considering the optimal blend of virtual and real experiences. When trying to create a sustainable culture in art education, we may also consider a blended learning approach: creation and construction with wood or clay as well as in a 3D modelling environment, making a mark with a chalk and a digital brush, experiencing art through real time museum encounters and, before or thereafter, through virtual pilgrimages in online collections. Current research on digital literacy reveals the importance of creativity while the most popular contemporary model for art education, Visual Culture, relies on digital skills and abilities when teaching expressive languages of media and popular culture. Consequently, digital and visual literacies should be developed in synergy and thus constitute a sustainable, culture – bound, still globally understandable new form of expression.

Child art of the 21st century is at a threshold: children are computer-bound while still creative in traditional media. Members of the X and Y generation seem to be highly visual, with self-made photos, sketches and film strips marking their way as they pass through cyberspace (Nielsen, 2009, 21st Century Skills, 2011). Still, educational policy makers in many countries (including our own) still claims a loss of interest in art and a rapid decline of visual skills in pre-adolescence and consequently diminish curriculum time and resources for art education. The classic theory of the “drawing gap”, the unwillingness and inability to create pictures after age 10-12, however, does not seem to take the abundant, sophisticated and versatile world of digital images of adolescents into consideration. Time has come to blend theoretical concepts of visual and digital literacies because, in practice, they have been integrated at least a decade ago, when the creation of multimedia became a means of expression for less sophisticated users.

“*Child art*” as a creative endeavour is a concept of the early 20th century, when modern artists realised their kinship with the most creative and relentless generation around: young children. Children’s imagery has been carefully studied ever since, and a vast amount of professional literature is available about their “developmental stages”. Still, a century later, we have to ask ourselves: do children still develop *representational* skills? Do they still follow the same stages of development that they did, when pencil and paper were the only means of creating a drawing? Or is their development based on our assumptions about “high art” that Gombrich (1960) described: art as illusion?

Digital child art – a new, blended developmental model for the visual language development of the Y Generation, has to reconsider traditional ideas about the artistic development of children and young people. The paradigm most often used in education, the *linear model of graphic development of children* envisages parallel stages of intellectual and graphic development (Arnheim, 1969) is unable to explain why children scribble unintelligible lines with a pencil while they create shapes in clay and produce eloquent representations with a digital drawing tablet. If the medium is the message, however, how can we explain the *spirals in development*, sudden lapses back to early childhood, (Löwenfeld, 1978), wild gestures of those young schoolchildren who have learnt to shape a perfect letter but at times, reach back to their kindergarten repertoire to visualise joy or horror? The new visual language our children create is traditional and digital, static and moving, multidisciplinary and focused on one medium, a group performance or a secret sign. Our *blended culture* produces blended creations by children as well as adults.

Our presentation will introduce current models of digital and visual literacies in order to reveal similarities of skill clusters and developmental trajectories. A new model of artistic development of children and youth will be proposed that integrates digital and traditional use of visual language and promotes a synergy between digital and visual literacies. As an example of sustainable, digitally supported art education, eco-design as an educational approach is proposed: a research-grounded and socially sensitive model that integrates aesthetic considerations with environmental consciousness and may provide a promising alternative to traditional practices of art and education.

LIGHTS... CAMERA... LEARNING! BEHIND THE SCENES AT THE MEDEA AWARDS

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Introduction

The MEDEA Awards have established themselves in the first 3 years of their existence as a unique forum whereby excellent examples of media use in education and training are recognised and celebrated. The MEDEA Awards have continued to expand through the European Commission supported project MEDEA:EU, which enabled the awards to operate in French and German as well as in English, and by specific activities aimed at putting in place a European network of support organisations as well as by harvesting best practices and making these available to the wider public.

MEDEA2020 is a dissemination and exploitation project (Lifelong Learning Programme, Key Activity 4, 2010-2012) which further extends this work by fostering the exchange of good practice amongst those actively creating and using media to enhance education and training in Europe. MEDEA2020 builds on the network created in the first 3 years of the MEDEA Awards and promotes educational media-supported resources created in the context of European networks, projects and initiatives. It responds to growing pressure to provide more relevant and attractive learning opportunities through the use of ICT in general and media in particular.

The MEDEA Awards are attracting more and more high-quality examples of inspirational media from those at all levels of education and training, including compulsory level education, higher education, lifelong learning and the training sector. However, this expertise often exists in 'pockets': while a great many producers and individuals demonstrate terrific skill and know-how, access to such expertise among the wider educational and training community is not evident. MEDEA2020 thus aims to heighten awareness among this community as to the value of media in learning, to raise the levels of skill by providing access to resources, expertise and inspirational examples, to enthuse and motivate practitioners about the use of media and to raise awareness and know-how amongst policy makers about trends, development and practice in this area.

The paper is designed to enable teachers, trainers and practitioners from all educational sectors to get a deeper insight into the issues surrounding the production and use of media for education and training, offering a forum for in-depth discovery and discussion. It is also aimed at developing transparency around the judging criteria applied within the MEDEA Awards, enabling educators and practitioners to voice their own opinions on what makes for high-quality educational media.

We give a presentation featuring samples from finalists and winners of the 2008, 2009 and 2010 MEDEA Awards. Production and pedagogical values will be discussed on the basis of these samples and conclusions will be drawn to support educational multimedia producers in their own work.

The judging criteria used in the MEDEA Awards will be introduced and conclude by identifying factors influencing the pedagogically sound use of media in education at different levels.

In line with the theme of the 2011 EDEN Annual Conference – 'Learning and Sustainability' – the examples for presentation will focus on environmental issues such as water, energy and waste, demonstrating how the powerful medium of video is being used in education to raise awareness of environmental issues among young people and adults and to bear testimony to concrete preservation and sustainability actions.

SUSTAINABLE ASPECTS RELATED TO THE USE OF VIDEOCONFERENCING AND (LIVE) STREAMING MEDIA IN CONTINUING EDUCATION PROGRAMMES ORGANIZED BY THE K.U.LEUVEN AND ITS CAMPUS KORTRIJK

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Background

The highways and secondary roads in Belgium are overcrowded, at almost any time of the day. With roads clogged with traffic congestion on average 26 hours a week across the country's worst bottlenecks, traffic has a major impact on consumers' and workers' daily life, the Belgian economy and the environment. These escalating travelling times due to the traffic congestion around Brussels, and hence more specifically to travel to Leuven from a place situated at the west of Brussels (and to return afterwards), causes a serious decline in the participation at continuing education programmes of the K.U.Leuven in Leuven. Besides the classical parameters (as content, teachers, ...), the proximity (in travelling time) is surely becoming a determining element in one's decision to participate in a lifelong learning training programme. This motivates the policy of the K.U.Leuven to develop continuing education that can be followed wherever and whenever the participant wants. It is clear that the use of videoconferencing and live streaming has substantial time and transportation saving opportunities for the participants. In this way it hence contributes to a more sustainable way of learning in the context of continuing education.

Videoconferencing

Because of the escalating travelling time to reach, and come back from, Leuven, an increasing number of programmes of continuing education are organized using videoconferencing between different locations of the Association K.U.Leuven. It is more and more becoming a structural way of doubling initiatives of continuing education, although it is in some ways more complex and difficult to organise (planning ahead in detail and briefing all actors is essential), making a solid organisational structure and approach (on all guest locations) necessary. The results of some cases prove abundantly the value and opportunities of videoconferencing in the context of continuing education, more especially in transforming travelling time into effective learning time.

(Live) Streaming media

The appealing, and promising, possibilities of a structural use of (live) streaming media are intensively considered and investigated at this moment. Similar as for videoconferencing, live streaming is of course more complex to organise and a solid organisational approach and technical support is necessary. In the context of some trials, positive results were obtained, with a positive evaluation by live streaming participants indicating time savings, transportation (and risk) savings and flexibility as substantial advantages. Some points of further research are remaining.

A sustainable business model?

From the viewpoint of organisers, both videoconferencing and live streaming certainly demand a specific thought through approach and more elaborate organisational and technical support. This of course represents substantial additional costs, as well infrastructure and equipment as personnel costs. Nevertheless, the authors are convinced that sustainable business models for the use of videoconferencing, and most probably also for live streaming, are possible. This means that the additional costs generated by using the (already available) infrastructure can (perhaps even largely?) be compensated by the additional fees generated by an increasing number of participants (who would not have been registered without the use of videoconferencing or live streaming). Moreover, as the number of initiatives using these technologies increases, the investment costs for each individual initiative decrease and can be more easily compensated. And compared with the option of doubling the same programme by organizing it on a different moment at a different place, the organizer also saves promotional, travelling and accommodation costs and lecture fees for teachers.

GLOBAL BEST PRACTICES IN AN INTERACTIVE VIDEO CONFERENCING AND STREAMING-ENABLED BLENDED LEARNING ENVIRONMENT

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Introduction

Education today is at a tipping point. As the lines between primary, secondary, tertiary and adult education blur, we find ourselves constructing an educational environment essential to lifelong learning. Though each academic level is complex with a distinctive culture, educational institutions must meet the demand of developing well-skilled knowledge workers for a global economy. Ultimately, companies need employees with a strong foundation in literacy, math, science, technology, and analytical thinking skills AND employees who have the ability to communicate well, work in geographically dispersed teams, and excel at problem-solving. In equipping students for the global workplace, educators must teach differently to develop the knowledge worker.

Not only must educators teach differently to ensure students are prepared for the global workplace, but they must address the way students learn today which is different from the students of yesterday. In *Digital Natives, Digital Immigrants*, Marc Prensky states, "Students have changed radically and are no longer the people our education system was designed to teach. Today's average [student] spent less than 5,000 hours reading but over 10,000 hours playing video games. Computer games, e-mail, the Internet, cell phones, and instant messaging are an integral part of the lives of these "digital natives." (Prensky, 2001, p.1). As a result, Prensky believes teaching methodology and content must change.

A Video-Based Blended Learning Environment

Through blending technology-enabled solutions, educational institutions can address today's demands of the global economy and create a learning environment that is highly engaging. The innovation occurring globally surrounding video-enabled blended learning or blended learning is worth the examination as we see implementation across all academic levels.

The capabilities of video conferencing and streaming-based technologies provide a blended learning environment for enhancing motivation, visualization, interaction, simulation, and/or individualization is happening asynchronously and synchronously. We are focused our research on video conferencing and video streaming-based blended learning as it relates to "distance learning" or "distance education." Video conferencing and streaming enables online instruction to meet the previously mentioned demands. With the blending of video conferencing, which empowers synchronous face-to-face communication and video streaming, which enables asynchronous access to media-rich content, and the trend heading toward mobility, we see a rise in integration into curriculum as technology proliferates across multiple modalities.

Summary

In order for us to stay competitive and meet the needs of learners today, we must change the way we teach. Visual communication has never been more readily available with affordability and accessibility in video-based technologies. The increase of quality of experience and features while costs are rapidly decreasing is driving a greater adoption. Likewise, the impact of video-based technologies development for mobile devices is quickly infiltrating educational programming. If we understand the trends causing environmental changes and know the benefits of integrating technologies such as video conferencing, video streaming and video collaboration into existing learning environments, we will provide a rich quality education to learners that will prepare them for their future rather than our past.

SHARED SOCIAL VIDEO IN HIGHER EDUCATION 'BLENDED' BUSINESS PROGRAMMES

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The term 'Web 2.0' was first used by O'Reilly Media in 2005 as a means of capturing the evolution of the web to what has also been called the 'read/write web' or 'the social web'. 'Web 2.0' or 'Social Media' is used to describe web applications and services such as blogs, wikis, social bookmarking/tagging, content management and collaboration, social networking sites, virtual worlds and digital media sharing sites such as Flickr and YouTube.

YouTube has been one of the most successful media sharing 'Web 2.0' sites since its inception in April 2005. Although YouTube is primarily perceived as an entertainment video site, it has a growing volume of educational video content posted by educators, students and professionals from all sectors of business and education. It was this ever growing number of 'educational videos' on YouTube and other video sharing social media sites like Vimeo, TED, and Blip TV that contributed to the impetus for this study.

This paper describes a research study on the student experience of using shared social video content in blended business programmes in higher education. A wide range of both professional and amateur video content was used to introduce emerging Internet and new media applications and technologies to business, enterprise and arts management students. All videos were from social media video sharing sites such as YouTube, BlipTV, and TED. The videos were used extensively in the classroom and online in a Virtual Learning Environment (VLE).

The qualitative research was conducted by informal 'in-situ' observations, face-to-face interviews and student reflective review reports.

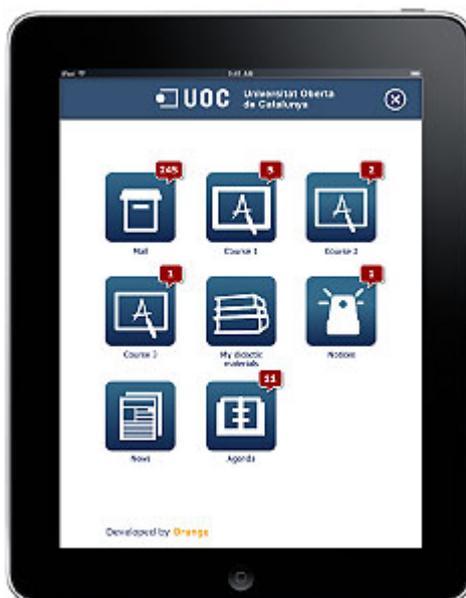
The results of the study indicate student questioning of the educational value of using such online shared video in a blended environment and point to the need for curriculum design considerations and instructional strategies to provide 'scaffolding' to support the achievement of student learning outcomes.

iUOC: ENHANCED MOBILE LEARNING AT UOC

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Introduction

iUOC: Enhanced Mobile Learning at the UOC is an initiative of the Universitat Oberta de Catalunya (UOC) in collaboration with mobile operator Orange Spain, that aims to take the UOC's virtual campus, My UOC, to new, more current, interactive and portable scenarios, such as the iPad. The Apple tablet is a user-friendly, intuitive and ultra-portable tool with Internet connectivity, which means it has great potential for the field of learning, where much experimenting is being done. Against this promising backdrop, UOC and Orange Spain have undertaken a pioneering initiative in the design of portable learning environments in developing a native application for the iPad, thanks to which the MyUOC virtual campus can now find its way onto your screen. iUOC also guarantees the real-world adaptation of its learning application via a pilot programme in which iPads with 3G connections are provided to 45 students and lecturers for accessing, via the native application, the virtual campus and the UOC's educational materials (adapted for the iPad) for a semester. Basically, iUOC aspires to enrich the learning experience making use of the versatility and portability of the new mobile devices, using RSS technology to provide a connection to the communication spaces of students and lecturers in the virtual campus and facilitating access to materials adapted for these environments and platforms.



What is iUOC?

In order to address students' needs, the UOC, in collaboration with mobile phone operator Orange Spain, developed a native application for the iPad from a user-centred perspective, guaranteeing a minimum learning curve for the application as it is intuitive and easy to use for both students and lecturers. Students participating in iUOC have the ability to check their mail, diary, educational materials, classrooms and the opinions of other students literally in their hands. They, therefore, enjoy a high degree of accessibility and total autonomy in managing their time. This study will assess the importance of accessibility and autonomy with respect to an increase in learning productivity and efficiency. Giving students the option of deciding when and where to study inherently entails a reduction in transport costs as students do not have to invest any money or time in travelling. In fact, one of the objectives of the iUOC project was to research how students can devote their time to learning while commuting, among other situations, the results of this research being applied to the design of the iUOC adaptations for the iPad and the portable Web.

MOBILE SUSTAINABILITY: USING M-LEARNING IN EMPLOYMENT CONTEXTS

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The emergence of mobile learning directly contributes to accessibility and sustainability in increasingly creative and impactful ways. The idea of sustainability is directly addressed by mobile learning supports that reach learners in a dynamic, mobile manner that is available at all times. This paper discusses the concept of mobile learning (“M-learning”) and outlines potential development scenarios for learning, which are supported by mobile solutions. The paper pays extra attention to how mobile technology can support learning in different environments and settings, and for different purposes. According to the experiences from a number of applied cases and based on some recent studies, mobile technology is extremely useful when the learning experience needs to be extended beyond classroom training, face-to-face guidance and e-learning. This especially has resonance and impact in the common scenario of work-based learning from a distance.

Mobile learning in terms of work-based learning offers significant advantages in terms of sustainable learning practice in the rapidly changing environment of work and employment. In a world where radical restructuring of priorities to meet tighter resources is required, mobile learning is an efficient and creative methodology with multiple potential applications.

As more and more technology is involved in our lives, and people become more experienced in the access to and use of technology, the better we understand how technology can be used for learning. In particular, a younger generation (often termed “digital natives”) have demonstrated that they are actually ahead of the curve. Many have been able to apply mobile technology and informal learning for years. Often their expertise and facility with advanced technologies points up stark contrasts with their educators or teachers, who are very far from the same levels of proficiency.

All this points to a radical shift in learning and teaching expectations – as well as competence. Younger populations have shaped mobile technologies in new and innovative ways to meet their needs. The implications for traditionally understood formal learning systems is evident. Innovative technologies and concepts such as the MoveL MLS platform developed by Mobiletools International Ltd. (“Mobiletools”) and high-speed networks enable new forms of interaction. The opportunity to interact with peers totally independent of physical location and in real time has led to the development of new kind of virtual and mobile communities.

This paper presents a number of cases in which M-learning has been applied successfully in employment contexts. Additionally, we will analyse the most recent developments and potential development scenarios for M-learning solutions in the future.

Advanced mobile learning technologies restore a strong sense of initiative to learners. They can access, assimilate and apply learning in cost-effective and engaging ways independent of restrictions due to geography and limited resources. The impact of this in work-based settings and environments is particularly interesting. New companies emerging in the environment of the post-2008 crisis need to design and apply learning for enhanced performance and sustainable operation in innovative ways.

The challenge for educators has been how to embed mobility to any learning as an integral element that supports the learning process and promotes sustainability for learning. Examples from vocational on-the-job learning and from the enterprise training sector show that there’s significant potential for M-learning in the more formal contexts and processes of learning. Earlier work and research also focused on M-learning as a dynamic factor in the creation of new learning communities. It can be stated that M-Learning does not hinder the formation of learning community, provided that organizing the work of the community is done with care. In practice, this underlines the fact that the technology used in education should support communication among the members of the learning community.

LEARNING OF ALGORITHMS ON MOBILE DEVICES THROUGH BLUETOOTH, SMS AND MMS TECHNOLOGY

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Brazil*

Teaching Institutions are up against challenges of an advanced technology of learning with the objective of improving the efficiency of the teaching-learning process. Joining the students' learning style to the technologies is important to improve the educational process. This work presents the advantages of using mobile devices, associated with the students' learning styles. The learning which is carried out with the use of mobile devices makes it possible for users to learn at anytime and anywhere.

IMPLEMENTATION OF WEB 2.0 TOOLS IN A BLENDED ICT COURSE AS A MODELLING OF ONLINE PEDAGOGY

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Introduction

This study sheds some light on the complicated, interesting question regarding the relative contribution of knowledge, technology skills and pedagogical experience to the teacher training process. Web 2.0 is becoming increasingly widespread, and enables the shift from the transmission of information to platforms which enable collaborative content creation, participation in social networks, sharing and exchanging. New possibilities that this shift presents now need to be considered in the learning process. Web 2.0 tools stimulate new modes of inquiry and create new opportunities for collaborative learning. In addition, they allow students to more easily express themselves in different media and develop a sense of ownership and enhanced engagement, as well as peer-assessment and collaborative content production (Crook, Fisher, Graber, Harrison, & Levin, 2009).

The purpose of this paper is to present the design and implementation of Web 2.0-based activities and the considerations behind the planning and the design of the online course "Teaching in Advanced Technology Environments" – a mandatory course for the majority of students obtaining a teaching diploma in a college of education. The course trains students in the implementation of ICT and distance education and aims at modeling its pedagogy in teacher education settings. The students experienced the course topics both as students and as teachers by designing and participating in activities that span course design, teacher's role and incorporate interactivity and different types of assessment. The course topics aimed at familiarizing the students with a wide range of Web 2.0 tools.

An additional aim of this presentation is to provide a set of strategies to support effective teaching and learning in distance education. These strategies are based on our teaching experience, feedback from students, as well as practical experience. In our course design we promoted interactivity and collaboration; tailoring learning activities to the online learning environment, as well as meaningful assessment and implementing efficient learning management, which we will present here. Not least, we will discuss our experiences tackling technical challenges, as well as working with students with different learning needs.

Methodology

This study was based on four groups of students, registered to the online course, with 16 students in each group. The course was conducted throughout an academic semester. The average age of the participants in this study was 29. Ninety five percent of the students were female. Six out of fourteen lessons were conducted face-to-face and two synchronously, while the remaining six lessons were held online.

Data presented in this study was collected before and during the ICT course through questionnaires. The questions focused on three aspects: students' ICT abilities and orientation, students' experience in ICT education, and their attitude toward ICT implementation and its contribution to learning. A pre-questionnaire was used to collect data from the study participants. The study was conducted through qualitative and quantitative analysis. Relevant information was collected based on surveys, correspondence and personal journals and interviews.

Conclusion

Our findings show that students considered Web 2.0 tools to enhance their learning. It provided them with the knowledge of a variety of tools and some of them even implemented them in their studies and with their peers. These tools also aided their practice in school, providing the opportunity to give more accurate task assessments and to make appropriate adjustments to the course design. It is feasible and desirable, through reliance on the capabilities of current technology, to construct a supportive learning environment that is effective, collaborative and interactive. The identification of the relationship between these and additional variables in a range of online learning environments can assist in constructing a better learning environment and in effectively catering to the needs of students and teachers.

WIKIS – TOOLS FOR CREATIVITY AND COLLABORATION – 3 CASE STUDIES FROM IADT

Hannah Barton, Marion Palmer, Laurence Riddell, Lynda Devanney, Institute of Art, Design and Technology, Ireland

This paper sets out to document how wikis are currently being used in IADT in two different disciplines to explore the creative and collaborative aspects of wikis. The paper will showcase examples of how Wikis have transformed what we define as learning spaces and demonstrate that there is no need for learning to be physically constrained to its environment. The issue of evaluating the pedagogical effectiveness of Wikis will be discussed with feedback from the students cited. The recent problems of WikiSpam as a problem for fully open Wikis will be mentioned in the discussion as well as providing some tips for using this type of technology for pedagogical assessment. Samples of the Wikis from all of the case studies will be shown in the presentation.

ACTIVITY PATTERNS IN SOCIAL NETWORKS OF ACADEMIC HIGHER EDUCATION INSTITUTES IN ISRAEL

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Introduction

Social Network Sites (SNS) demonstrate a profound transformation of interaction, profoundly changing our lives both in the physical world and in the virtual world. Several studies highlight the opportunity to connect, communicate and broaden our offline experiences using SNS. The popularity of SNS among students and faculty in higher education suggest unlimited possibilities for prospect students as well as for the community involvement as a whole in the academia. Hence, ample amount of research is essential for examination of the potential of these online environments. The main purpose of this study is to empirically examine how SNS are being utilized by higher-education institutes in Israel.

The Study of Activity Patterns in SNS

In the current study, we address questions regarding activity patterns in Facebook and Twitter accounts of these institutes. Research population comprises of 47 Facebook accounts and 26 Twitter accounts of Israeli universities or colleges and/or sub-divisions within these institutes (e.g. departments, libraries, research centres, and special educational programs). Activity Indicators defined for the study were associated with the activity in the main platform within each network. In Facebook, the "wall" is the main feature, reflecting the user's network activity and allowing friends to post public messages to the user. In Twitter, each user's timeline holds her or his tweets and other users' tweets in which the user is mentioned. Indicators included: First and last date of wall posts (Facebook); First and last date of tweets (Twitter); Total number of wall posts (Facebook); Total number of tweets (Twitter); Number of "Like" votes on wall (both for messages and their comments) (Facebook); Number of comments on wall messages (Facebook); Existence of wall messages posted by others (i.e. not account owner) (Facebook). Additional activity indicators included unique features used in the two SNS platforms. Findings reveal an exponential distribution of activity patterns in SNS accounts, with most accounts demonstrating minor activity, while few accounts are heavily active. The same pattern of 'Many are active to a minor degree while few are heavily active' is evident in the usage of special features offered by SNS. We identified 4 types of accounts according to their activity over time: short-lived, abandoned, constantly active and potentially active.

Research Findings

Research findings suggest that the activity of academic institutes in SNS preserves a well-established Internet phenomenon: while many accounts were only active to a minor degree, only a few accounts were heavily active. In addition, use of special features enabled by SNS was extremely low, suggesting that SNS were utilized in an assimilation mode. However, contrary to the relatively high dropout rates of SNS' personal accounts, many academic accounts were frequently active for long periods of time.

While the potential for interactivity is demonstrated in social networks mainly for private individuals, our study demonstrates that institutes should make better use of SNS's unique characteristics. In our era of massive communication and interactivity, community members' needs – both members within the institute and outside it – are satisfied. Individuals contribute content to social network, thereby shaping its nature and emphases. Members of an academic SNS may be motivated by a sense of belonging (e.g. alumni) as well as immersion, while the institute may have additional agenda (e.g. PR, enlarging enrolment), unlike commercial companies that are basically motivated by revenues. Overall, this study implies that the potential of SNS in higher education institutes in Israel has not been actualized yet.

BUILDING AND SUSTAINING A LEARNING COMMUNITY FOR PROFESSIONAL EDUCATORS IN A WEB 2.0 WORLD

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One of the challenges facing lecturers in Higher Education in the 21st century is how to sustain relevance to the rapidly changing expectations of a student body who are now immersed in a web 2.0 world. The central aim of this paper is to describe how the Learning Development Centre at City University London is responding to this challenge by developing an active approach among lecturers and professional staff who work with each other to develop and sustain a learning community. This paper aims to explore how this has been achieved, the issues that have been raised and to examine opportunities for further development in sustaining a University-wide community of confident web 2.0 practitioners. The specific focus is on the development and delivery of a 30 credit module on Technology Enabled Academic Practice.

Using the Community of Inquiry and Community of Practice models the authors show how the programme facilitates and promotes teaching and learning approaches which emphasize collaboration through providing tools and techniques which develop practitioner confidence in engaging with web 2.0 tools. A discussion of the varied topics and activities deployed on the programme demonstrates how a genuine sense of community is developed and sustained. This approach is re-enforced through the assessments which encourage peer to peer learning as well as developing practical expertise in current learning technologies which can be applied to their current academic practice. The paper concludes with comments from students who have completed the programme and suggests ways of sustaining the community beyond their immediate involvement with the programme.

THE DEVELOPING ROLE OF THE EDUCATOR IN WEB 2.0 AND OER ENVIRONMENTS

Tina Wilson, The Open University, United Kingdom

Introduction

The proliferation of Web 2.0 social networking tools enables the creation of new open teaching and learning spaces. This paper investigates the use of open social forums associated with Open Educational Resources (OER) to facilitate informal and formal online activity between learners and teachers. The focus in the main is on two lecturers who are familiar with the use of closed and password protected online environments.

The developing role of the educator as a facilitator in open social networks is investigated through actual use of OER and associated open forums for informal learning. The paper also reports on whether open forums attached to OER will be adopted instead of closed and password protected areas for formal learning.

The study approach

This discourse is based on an intervention involving actual use of OER and associated open forums for informal learning in Human Computer Interaction (HCI). To ascertain how OER and open forums function and whether they could be adopted for formal learning, the following questions are addressed:

- How does the use of the OpenLearn open forums differ from usage of closed and password-protected forums used elsewhere?
- How does interaction in open forums, differ to interaction in closed and password-protected forums?
- How does the role of the moderator differ between open and closed and password-protected forums?
- Could open forums be adopted for university teaching?
- In what ways might open forums improve the learning experience for users?

The data gathering techniques used were observation of online activity and semi-structured interviews. Two UK Higher Education Associate Lecturers in HCI familiar with usage of closed online forums discuss their experience of monitoring and contributing to two HCI open forums over a two week period in the spring of 2008. The semi-structured interviews with each of the two Associate Lecturers were conducted in June 2008.

Discussion

Both lecturers were keen to use OER with their students. However the lecturer opinions on use of open forums differed with one keen to adopt open forums and one much more reticent. This research indicates that the use of open forums can be quite different to the use of closed and password protected areas. The two HCI lecturers suggested the need to drive social interaction in open forums with activity. The first HCI lecturer said that learners are unlikely to return to the open forum when they have completed their study of the OER unit. This HCI lecturer also appeared to be suggesting that the use of pre formed groups could make online forums appear less anonymous.

The findings suggest that one lecturer wanted to consider using open environments for formal learning and one lecturer did not. Although the findings in the main are positive, there is a suggestion that facilitative techniques need to be further developed to support and sustain learning communication with OER and associated open forums.

Although new Web 2.0 communication tools are available, it remains to be seen how learners might actually interact in such open environments and what collaborative and cooperative learning experiences will be presented. This research provides early findings with reference to the potential benefits of OER and open forums. These results form a basis for more detailed research into the best ways to support communities in an OER environment. Future work will investigate the use of a variety of Web 2.0 social networking tools associated with OER with students and their lecturer within the HCI discipline area.

SUSTAINABLE DIGITAL LEARNING OBJECTS & PRE-SERVICE STUDENT TEACHERS – A STEP TOO FAR?

Alison Egan, Marino Institute of Education, Ireland

This paper reports on a work in progress study where pre-service student teachers choose an elective course on Web 2.0 in the Classroom, and create digital learning objects. The paper discusses Web 2.0 technologies, specifically blogging and podcasting and reviews their uses in an educational context. The study finds these student teachers when given specific direction can create their own digital learning objects and have ideas as to how they will implement them, in their future classrooms. Extending the course to all year groups as a mandatory requirement of their course, is a recommendation of the study, and forms part of an ongoing work in progress in the Institution.

TOOL TIPLS – TOOL TO IMPROVE TRANSPARENCY OF PROFESSIONAL FOREIGN LANGUAGE SKILLS

Alan Bruce, Universal Learning Systems, Ireland, Anca Cristina Colibaba, Stefan Colibaba, Lucia Petrescu, Al I Cuza, Grigore T. Popa University & EuroEd Foundation, Romania

Tool TIPLS – Tool to Improve Transparency of Professional Foreign Language Skills (LLP-LdV-TOI-2009-LT-0042)

Tool-TIPLS develops on the need to have an online Framework of reference to assess foreign language skills in specific field of hospitality. The project directly addresses one of the priorities set by the Copenhagen Declaration – to investigate means of promoting transparency, comparability, transferability and recognition of competences and/or qualifications, between different countries and at different levels. This enhances the development of and work on common principles and measures for certification including a credit transfer system for vocational education and training. Research by project partners illustrate the current situation in all of the partner countries which shows that professional foreign language competences are evaluated by different systems and criteria not only in each country, but also at institutional level according to their needs.

Addressing this situation, the project develops an online tool to improve transparency of professional English language (as lingua franca) skills in the selected target sectors of the Hospitality industry. This ensures future relevant levels of foreign language competences and their evaluation to people employed or seeking employment in this area.

The stages within the project implementation gradually evolve from defining the levels of skills, using existing VET curricula in each project partner country, up to creation of the descriptors for professional English language skills and competences, (TOOL) based on CEF and ECVET. To test and validate the TOOL the partnership implemented international online piloting in partner countries. Validation was achieved with the help of social partners–potential employers and professional consultants to implement the final improvement of the TOOL. Dissemination and valorisation of the project products was done via local, regional, national and international networks, via national and international conferences.

The project focuses on developing vocational skills through professional foreign language knowledge, specifically in relation to the Hospitality industry, enhancing young peoples' potential for mobility within the European labour market, encouraging intercultural learning and empathy in the Hospitality industry for international communication in different countries and integrating professional language learning in theory with practical application within specific occupational sectors.

The main output of the project is a tangible product- a set of downloadable CD's with the tool of descriptors and user guide in all of the partner languages. The consortium of the project consists of VET institutions from Lithuania, Latvia and Finland, language teaching professional institutions from Lithuania and Romania and internal evaluator from the UK.

Through open dialogue and with involvement of the target groups, the project proposes a EC supported VET educational enrichment by developing a transferable TOOL, which would be adaptable and applied as a common evaluation tool at the VET and language teaching institutions, useful for the employers and employees, transferable from study to work, from one sector to another and from one country to another, creating common measures of an evaluation system in the EU.

WEB 2.0 AND 3D VIRTUAL ENVIRONMENT FOR A SUSTAINABLE KNOWLEDGE SOCIETY: ST.ART PROJECT

Ilaria Mascitti, Daniela Di Marco, Monica Fasciani, Francesco Fedele, Università degli Studi Guglielmo Marconi – Telematica, Italy

Introduction

The processes of learning are complex and multifaceted, the most advanced education systems are focusing on flexibility, risk-taking, creativity and problem solving through modern methods of teaching and so called “atypical” forms of learning, such as co-operative learning, and through the use of multilateral clusters, community networks and ICT in teaching. The breakthrough of cognitive and constructivist approaches shifted the focus of education methodologies from teaching to learning. According to this paradigm teaching and learning in schools should be viewed as systemic processes that rely on principles of active participation, social interaction, dialogue and reflection. In this context the teachers are more like facilitators who help the learners to get to their own understanding of the content.

ST.ART project

Within this context ST.ART project (Street Artists in a Virtual Space) (funded with support of the European Commission under LLP Programme Comenius) focuses on a trans-disciplinary and interdiscursive approach with an orientation to self organisation. Its aim is to provide students and teachers with innovative pedagogical tools based on a new Virtual Learning Environment that is the result of the combination between an e-learning platform and a 3D virtual world. The first one uses a modular learning platform to favour students’ content learning. The second one allows to elaborate contents in a practical laboratory using the competences acquired. The main topic is street art, and the central objective is to have students in secondary schools know and understand the difference between street art and vandalism. The learning process is implemented in 3 different sessions: 1) the e-learning environment (theoretical), where the lectures are mediated by the teachers. Claroline is the E-Learning platform used for the delivery of the online course. 2) the 3D virtual world (practical) made up of a city, Metropolis, where students, under the guidance of the Mayor, carry out a project artwork and participate in synchronous lectures. As for the 3D Virtual world, Open Simulator, often referred to as Open Sim, is an open source server platform for hosting virtual worlds. While it is most recognized for compatibility with the Second Life client, it is also capable of hosting alternative worlds with differing feature sets with multiple protocols. 3) the social area where the students interact with peers guided by a moderator. The friendly interface of the technological tools allows users to connect with one another and to identify themselves with their own avatars, to increase motivation, to reinforce the skills previously acquired and to enhance their overall learning experience. The school teachers, previously trained, play together with the students since it is essential for the teachers to communicate with students in a common language in order to be able to still lead and shape students’ learning. As teachers play, they help the narrative unfold, motivate students with appropriate feedback and highlight key concepts embedded in the virtual scenario. This social interaction and the relationships that develop, in this immersive virtual reality, between students and among students and others, create a community of learners.

Results

ST.ART’s main result is to have produced an innovative learning and teaching methodology that merges together the theoretical and the practical aspects i.e. the contents that integrates the latest art trends with current art curricula and an innovative technological system which creates a new Virtual Learning Environment. The didactic material produced can be used in High schools for integrating text books. The didactic settings involve the users with user-generated contents, transforming people from content readers into publishers thus participating in the knowledge construction. The technological functionalities are designed to facilitate the pedagogical model implementation both in formal and informal educational settings. The range of applications used to support the chosen topics demonstrate an interest to cross subject boundaries and take learning beyond the classroom.

ON LINE INTERACTIONS AND LEARNING ECOSYSTEMS – A COMPLEX LEARNING EXPERIENCE

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In an ecosystem, every organism plays an essential part. It is impossible for one organism to go it alone. Similarly in a learning ecosystem, every individual has a role. Just as in biology, every organism is a consumer as well as a producer, so in a learning ecosystem every individual's contribution is important for individual and societal learning and so, for the same system sustainable continuous change and developed.

Learning and sustainability is addressed in this paper from three diverse, and intertwined, perspectives at the individual, organisational and societal levels: inclusiveness, complexity, virtual collaboration in ubiquitous and open learning scenarios.

This paper's underpinnings are the reflections and experiences on complex relationships among organisms and networks, and among them and their relevant environments in collaborative learning virtual spaces. We first briefly recall the main framework addressing individual, organisational and societal learning processes and their dynamic, complex (organic) relationships. Then, we deepen the complex learning frame. Finally, we present the main evidences emerging from the experience of LLLP' Deeper project, realising a complex learning environment ("ecosystem") for refugees trainers, valorising collaborative (and connective) learning and facilitating interactions within the community and with its relevant external environment.

Complex Learning Model, will be analyzed in order to give a concrete example of that dynamic process. For this reason in this paper we would illustrate the virtual community of Deeper LLLP project, involving diverse actors (and networks) such as institutions, associations and individuals working in the refugees and asylum seekers system and who need to interact, socialize and build knowledge, competences and shared value. Deeper learning processes are intended:

- to be strongly inclusive;
- to valorise contemporarily the community identity definition and its openness to the relevant external environment (targets; institutions; society; and so on);
- to valorise the organic relationship among formal and informal individual and group/organisational learning.

Complex Learning Approach and Evidences

Complex Learning is a blended model in a wider sense: it not only integrates face-to-face and distance, but also expands this perspective enriching it with a multiplicity of actors, resources, communication forms and means, where the result is bigger than the sum of its components. Different e-learning typologies, new languages and new interaction modalities are in a continuous reconfiguration, and therefore in "remediation" (Bolter and Grusin, 2002).

PODCASTING: A TOOL FOR SUSTAINABLE ONLINE LEARNING ENVIRONMENTS. EXPERIMENTAL ANALYSIS OF THE NEW OPPORTUNITIES

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State of the art

Individuals are at the centre of environmental, social and economic innovation. To be innovative a wide range of skills and competences are required: ability to learn, adapt, qualify and re-qualify, and so on. Recent studies carried out by the European Commission show how investments in enhancement and development of skills promote new kind of employment and the activation of social and technological innovation dynamics (New Skills for New Jobs, 2010). Within the above framework, distance learning and research aiming at identifying effective tools for on line distance learning, in particular, are to be considered key resources to respond to such a urgent demand.

The project¹, presented here, aims at assessing the effectiveness of podcasting, observing, collecting objective data on the impact that their use implies and taking into account teaching and learning models at the basis. The analysis of the above researches, in fact, can give the direction to take to reach improvement and quality.

Objectives

As already mentioned, one of the main objectives of the project is that of identifying effective strategies to build adequate teaching and learning tools.

Research Hypotheses

The present research points at investigating, mainly, if: it is possible to create online teaching and learning resources, taking into account the relation process/content in the terms highlighted above; however in a situation that is not a face-to-face one, it is possible to establish the integration between oral and written message that podcasting allows with easy accessible tools; the use of podcasting, supporting traditional teaching and learning, improves learning levels of Higher Education students.

Methodology

The project underwent an experimental development that has been carried out at two modules entitled *Theory and Practice in Writing the Final Dissertation (TaP)* and *Methodology of Research (MoR)* active at the Faculty of Education – University Roma TRE. Students could attend face-to-face but they had at their disposal, on the Department website (www.diped.it), podcasts of the lectures linked to the sets of slides presented in class. Research work was organized taking into consideration two groups of students: one attending traditional teaching and the second supported by recorded teaching material, containing the voice of the lecturer, available on line.

Activities carried out, therefore, were the following: analysis of the students' characteristics; definition, creation and administration of a questionnaire aiming at defining students experience as regards online resources and podcasting in particular; realization of online interviews with the students on the use of podcasting at Higher Education; collection of data; analysis of the data also through statistical devices; reporting and final remarks.

Conclusive remarks

The full length contribution highlights data and findings that showed how podcasts could be a valid support especially for part time students, who can benefit from the integration between on line and written message of instruction.

¹ The research group involved in the project is composed of Benedetto Vertecchi, Antonella Poce and Francesco Agrusti. Laura Corcione analysed data coming from the questionnaire, regarding the use of podcasts, and wrote the related paragraph. The rest of the contribution has been carried out by Antonella Poce, who coordinated the research group.

SUSTAINABILITY CONCERNS ON PROJECT ASSIGNMENTS – A STUDY CARRIED OUT IN AN UNDERGRADUATE PROGRAMME ON ENVIRONMENTAL SCIENCES

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The United Nations Decade of Education for Sustainable Development tackles education by addressing the way we live, our values and our behaviour, also showing that education for sustainable development is not a subject to teach, but rather one that cuts across many subjects. Moreover education plays an important role which means that it should not be a mere channel to pass on knowledge but mainly a mean to change the way people think. Sustainable development brings many challenges to the universities:

The current work presents an example of a strategy to promote and develop the inter- and transdisciplinarity that has been followed at Universidade Aberta (UAb). The UAb recently assumed a student centered pedagogical model founded on three main principles: *flexibility, interaction, digital inclusion*. Following this new strategy we redefined our approach to learning environments and introduced a wider range of teaching and learning methods, matching those with the goal of developing a set of learning experiences. In this context and because we are continually seeking new ways to capture the attention of students and create active learning environments, where minds are engaged and interests are nurtured, an undergraduate programme on Environmental Sciences was offered for the first time in 2007. This program, directed to an adult population (over 21 years old) who are mostly working individuals seeking professional development, has in its structure two field work courses. Fieldwork in higher education (HE) encompasses a wide range of outdoor activities, which can be incorporated in distinct theoretical frameworks. The general agreement on the pedagogical value of fieldwork is recognized by several scientific areas where it is included as part of *core curriculum*. It provides a direct contact with concrete phenomena and materials and there are positive cognitive, psychomotor, and affective – interpersonal and behavioural – influences of field trips on students. This is particularly relevant in environmental sciences teaching where one of the main goals is to develop the capacities to construct holistic models, which includes taking into account the interrelationships between environmental factors and processes, analyzing different case studies and developing a project based in problem solving method. Furthermore students will acquire autonomy to establish a hypothesis, structure the observations and interpretations, decide on the appropriate strategies to validate them and finally discuss their findings. The aim of the field work curricular units within the Environmental Science Program at UAb is to integrate the different scientific disciplines through project work and by being in direct contact with reality and real life situations.

In this study we applied a content analysis methodology to the title, synopsis and objectives of a list of project proposals. A set of criteria were assembled aimed to identify a possible evolution on the work performed by the students towards a more relevant and knowledgeable engagement with a sustainable society. These projects are the main contribution for students' final assessment of Fieldwork II course, and are based on problem based learning.

The content analysis performed on the projects carried out by the students for the past two years leads to the conclusion that the lecturers' different backgrounds are an important factor for the project work. It should be stressed that the different scientific working areas of the lecturers are reflected on the different understanding and interpretation of sustainability concept: some have a weak concept of sustainability while others with a closer relation with the values of nature conservation, show a concept of strong sustainability. Nevertheless the discussion of the results need more detailed analysis in order to be able to fully support those interpretations. This also applies to the project assignments developed by the students and questionnaires surveys to evaluate their perception about competent objectives and level coverage within sustainability concerns will be conducted.

The new orientations are intended to promote in both, lecturers and students, skills for the elaboration of the final project related with problem based learning and presenting innovative solutions for different case studies, in order to produced graduated students with new competences for sustainability development practices.

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SUSTAINING LIFELONG LEARNING: A REVIEW OF HEUTAGOGICAL PRACTICE AND SELF-DETERMINED LEARNING

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Heutagogy is a form of self-determined learning with practices and principles rooted in andragogy. The heutagogical approach to teaching and learning is a highly autonomous and self-directed one, one that emphasizes the development of learner capacity and capability with the goal of producing learners who are well-prepared for the complexities of today's workplace. Heutagogy further expands on the concept of andragogy by emphasizing double-loop learning, a practice that places the focus on the learning process itself and the importance of learning how to learn. This practice of self-reflection takes into consideration the learner's beliefs and values as influential factors in the learning process and encourages development of cognitive and meta-cognitive skills.

Heutagogy has recently resurfaced as a learning approach after a decade of little attention from higher education and researchers. The source of this renewed interest is web 2.0, and the affordances that the technology provides. With its learner-centered design, web 2.0 offers an environment that supports a heutagogical approach, most importantly by supporting development of learner-generated content and learner self-directedness in information discovery and in defining the learning path. Based on an extensive review of the current literature and research, this paper defines and discusses the concepts of andragogy and heutagogy and describes the role of web 2.0 in supporting a heutagogical learning approach such as creation of learner-generated content, active engagement in the learning process and with instructors and other learners, group collaboration, and reflective practice through double-loop learning. Examples of institutional programs that have incorporated heutagogy are also presented, and, based on these examples and research results, design elements that are characteristic of heutagogy are identified.

The presentation will provide a brief overview of heutagogy and provide examples of using a heutagogical (self-determined) approach in the online classroom.

IMPACT OF ECOSYSTEM CHANGE ON INSTITUTIONAL STRATEGIES TO SUSTAIN E-LEARNING DURABILITY IN HIGHER EDUCATION: THE UNIVERSITY OF LAUSANNE EXPERIENCE

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The case we describe in our paper deals with the adoption of innovation in educational practices at the University of Lausanne, for about the last 10-15 years. This was not a steady process. It started from a top down strategy financially supported on a national, regional and institutional level as incentive programs. But after a few years, the university revised radically its strategy for a variety of reasons also explained in this article. If adaptation to new contexts influenced by technology evolution, pedagogical concerns, generational change, financial strategies, etc., is a constant task, the risk of a drastic change of strategy remains high because of the disruptive character of innovation.

Radical change in strategies is always humanly and institutionally costly. However, although many other circumstances can be of influence in the perceived need of strategy change, it is inevitable when the types of innovation are inappropriate or resisted, and the adoption of new teaching practices is insignificant. Therefore, we identified seven dimensions that we think impact on the adoption of innovative teaching practices in our Higher Education context:

Professional identity of academic staff: In the Swiss Higher Educational context, the academic staff is primarily hired on the basis of excellence in research. Therefore, we identify that in order to integrate innovative pedagogical considerations, their research-centred professional identity must be widened.

Forming new professional habits: We need to take into account that adopting new technologies, approaches and practices require forming new habits, which is a long and uncertain process. This implies giving space and time to trial and errors, acknowledging that each individual – teachers and students alike – will follow his or her own pace in changing ways if at all.

Elaborating new teaching scenarios: The long term adoption of new technologies and their related practices has little chance to succeed if the academic staff only reproduces provided examples and scenarios. We consider that their ability to elaborate new learning scenarios is a critical component of an environment beneficial to technological innovation.

Adaptive context of practice: To support creativity, the institution has to provide flexible, diverse, user-oriented tools and scenarios, whose availability is secured and support at hand, while also providing room for individual exploration and preferences.

Pedagogical and technological consistency: Before embracing new practices, trust that one is working in a consistent environment is needed. In this context, such consistency must be based on an expert vision of present and future use of teaching and learning technologies. It is also important that this vision be elaborated in a concerted way so that consistency, institutional support and up-to-date technology will be assured on a long-term basis. Technology watch is a vital aspect of innovation that cannot be imposed upon or imputed to teachers.

Managed adoption of technology: Teachers need to know that their working environment is capable of absorbing impacts of potentially disruptive technologies, which moreover are in rapid and constant evolution, and therefore often conflict with IT services strategies.

Understanding of teachers' needs: Last but not least, the academic staff needs to be understood when formulating pedagogical and technological expectations for teaching and learning. Support people must understand the academic context, be able to adequately identify scenarios and available solutions as well as, when necessary, to design suitable tools and interact with programmers.

Our paper briefly examines how these seven factors were dealt with in two distinct periods of activities, before and after a radical change of strategy, and questions the very possibility of innovation fostering organisational stability.

KNOWLEDGE-PULL EDUCATION: STRATEGIES TO PROMOTE STUDENT RETENTION IN E-LEARNING ENVIRONMENTS

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Introduction

Institutions of higher learning acknowledge that their primary motivation for offering online courses is to increase their overall rate of degree completion, a critical measure closely tied to accreditation and other measures of academic success. Indeed, educational institutions throughout Europe and United States report that economic recession has increased the demand for online education. Unfortunately, completion rates of programmes using distance and blended learning technologies have consistently lagged behind more traditional educational learning environments leading to effects directly opposite that leading the institutions to embrace online environments.

Push versus Pull

The concepts of “push” and “pull” stem from the business world, most particularly in consumer marketing strategies. A *push* approach to consumerism is based on the creation of goods and services in anticipation of customer needs. This approach is appealing from an economic perspective, as it allows businesses to control the flow of products to suit market demands and their individual needs.

A *pull* approach to consumerism draws from a customer-centric paradigm, relying upon a ‘make to order’ process. This process is based upon stated (rather than perceived) needs. While this approach holds greater interest for consumers due to a greater confluence of choice and personalization, it is more costly for businesses both in terms of time and product development.

Most educational institutions continue to favour a business model that reflects the push approach favoured by the industries for whom they supply graduates (as future employees.) The trend toward business modelling is so common that historic measures of best practice in industry, such as the Malcolm Baldrige Award, have established separate categories for excellence in Education. In a push-education environment, accrediting bodies and experts in academia establish appropriate benchmarks for student preparation. Learners are required to work within the structured confines of established programs, often with limited opportunity for change. And yet this is exactly what learners identify as a major cause of their dissatisfaction with traditional educational programmes, leading them to drop out of online educational programs.

In addition to traditional classrooms and online content-management systems, today’s learners are seeking knowledge through social media outlets, blogs, Wikis, and even viral videos on YouTube. This has been referred to as a “cloud-based” system, supporting a seamless and continually evolving learning environment. Self-directed learners seek environments that promote a knowledge-pull culture, where non-linear modalities allow an individual to be guided toward knowledge translation in using a personalized process approach. Such methods support active learning and engagement in the evolution and synthesis of ideas. Although this is an appealing approach to learning from a consumer-focused perspective, it is a challenging and expensive process from an institutional stance, and runs the risk of directly opposing centuries of tightly held beliefs in the superiority of professorial knowledge and investment in gatekeeping the ways in which knowledge can and will be transferred.

Strategies to Promote Learning Retention

Sustainable e-learning programmes must attend to the expressed demands of a pull-knowledge economy and begin to utilize a ‘cloud-based’ distributed learning systems. These new learner controlled systems will promote engagement and foster a greater level of trust in the learning partnership. Specific strategies to promote student retention in e-learning environments will be offered using a case-study approach, based on experiences at the University of Wisconsin-Stout. This university was the first post-secondary educational institution to receive the Malcolm Baldrige Award for excellence in education and has recognized the evolution of change from a pull-knowledge to a push-knowledge economy.

AN INVESTIGATION AND EVALUATION OF ONLINE LEARNING STRATEGIES WITHIN ASYNCHRONOUS AND SYNCHRONOUS LEARNING ENVIRONMENTS

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This research focuses upon understanding teaching and learning within asynchronous and synchronous environments within a distance learning programme in Higher Education at the Open University. Second year students utilise a variety of teaching and learning resources and develop strategies for their learning dependent on the particular methods being used within their online/distance learning environment. The students may have different experiences and there may be a need for new strategies which may apply differently, depending upon the learning environment. The research considered the way in which students interact within online environments and whether there is a difference in terms of the type of interaction and the timing of the interaction. The focus of the research is to investigate the views of students and tutors towards teaching and learning within learning environments.

The students value the teaching and learning which is taking place within the asynchronous learning environment. In particular students feel the value of. Although social constructivism is present within the synchronous sessions, the students were looking for more group interaction from the teaching and learning. This is identified through the questions upon whether the students are looking for social interaction with the tutor and other students. They would like more sessions (66.7%) and they enjoyed meeting and discussing with other students (66.7%)

They were looking for the synchronous learning environment to offer an environment where students could come and discuss their difficulties/problems along with their peers. The synchronous learning environment was particularly helpful when students were studying a difficult topic such as the programming. Tutors felt that students were looking for more than simply activities to go over (75%). They were looking for the opportunity to chat with other students (100%) and to feel part of an on line community (100%). This reinforces the student's responses that they are looking for more group discussion. However they are not looking to discuss social interests. They are looking for an academic community where they can discuss their problems and difficulties.

Students are becoming more demanding as they are looking for activities from the units but also additional activities from tutors within the online environment. The experiential theory still has a place as the cycle of reflection is still important to the learner whether face to face or in the learning environment. Students are looking for support for assignments (100%), additional course material (83.3%) and tutors to answer questions (100%). They are also looking for support to catch up when struggling with the course (66.7%). There is a real desire for the teaching and learning to concentrate upon areas of the course which are most difficult and also offering extra sessions to students who are struggling. The positive responses indicate that students are looking for more than experiential learning but new and innovative ways of learning through social constructivism. The nature of the student/tutor relationship within this environment is very different and unique.

Students describe asynchronous learning environments as having a particular academic purpose. They make postings at the start of the course, engage in social interaction with the tutor on particular topics, carry out activities and discuss additional material for the course. The students also indicate that they are looking for different types of environments depending upon the stage of their learning. For example at the beginning of their studies they are looking for an asynchronous learning environment which provides information and a link with the tutor. Whereas, as the students move through the course they are looking for a synchronous learning environment which they can use to build up peer support. We believe that this research shows that we have moved towards a new position where the balance between technology and education in terms of learning environments has shifted.

OVERSEAS STUDENTS STUDYING COMPUTER SCIENCE AT A DISTANCE LEARNING ENVIRONMENT

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Introduction

The Open University of Israel (OUI) is an institution of higher learning with an open admission policy which is based solely on distance learning and self-study. The teaching methods practiced at the OUI combine traditional and web-based distance education. The traditional distance education is based on written materials sent to the students at their homes. The web-based distance education includes course websites. The course websites provide an interactive learning environment. Each course website contains the following learning and administrative elements: interactive learning, supplementary learning materials, course bulletin board, personal activity schedule, list of fellow students, course staff, web-based assignment submission system, on-line administrative services.

Overseas Studies

Hundreds of Hebrew-speaking students worldwide have studied at the OUI towards undergraduate and graduate degrees, certificates, and for personal enrichment. These students have to cope with their studies in an isolated environment. The paper describes the mode of study conducted by overseas students including: counseling, teaching format, assignment, exams and project and seminar presentations,

The Study

In our study we wanted to characterize the overseas students' profile. We analyzed their worldwide distribution, their age distribution, their gender, the number of credits earned; the percentage of courses studied abroad and their grade point average. The research population was composed of the following two groups:

- 62 overseas CS and interdisciplinary CS graduates who studied at least one course abroad.
- 59 overseas students who are currently (academic year 2010) enrolled in one of the CS programs from abroad.

Conclusions

The following results summarize our findings:

- About half (52%) of the overseas students are located in North America and about a third (29%) of them are in Europe.
- The age group of the overseas students is slightly older than the age group of the general OUI student body. 19% of the overseas students are under 26 while 37% of the general OUI students are in this age group.
- 27% of the overseas students have just started their studies while about 40% of the students have completed more than half of the degree requirements. 15% of the students have studied more than 10 courses abroad which is more than 40% of the degree requirement.
- 40% of the overseas students have a superior grade point average between 85 and 100.

Although it is very difficult to study abroad in an isolated environment, we are very satisfied that the overseas students are successful especially considering that the CS and interdisciplinary CS programs are extremely demanding.

SAVING MONEY OR ADDING VALUE? WHAT STUDENTS SAY ABOUT THE MOVE TO DIGITAL LEARNING RESOURCES

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This paper describes the results of a pilot initiative to replace traditional printed study materials with digital learning resources. The pilot was an attempt to provide students with more sustainable study materials at the same time as 'adding value' to their learning through new digital solutions. In addition to embedding academic content and relevant links to published journal articles directly within the Learning Management System (LMS), the pilot included the use of an online annotation tool known as A.nnotate (<http://www.a.nnotate.com>). The aim was provide an integrated digital solution for course content, which both enhanced the learning experience and reduced the need for students to rely on traditional printed versions of study materials. The objectives of the pilot were to:

- determine the level of use and effectiveness of the digital delivery of learning resources, including annotation tools;
- understand staff and student perceptions of the digital delivery of learning resources;
- assess the types of supports, services and resourcing requirements needed for the effective digital delivery of learning resources

The research involved an online survey that collected responses from participants through a web-based questionnaire. The sample was limited to students in the College of Business, which was an early adopter of the University's new LMS. Over 1200 students responded to the survey (28% response rate). Both internal (528) and distance (681) students took part and data were also collected through focus group discussions with participating staff – although this paper only reports findings from the student experience.

The results were largely positive. Most students had accessed their online study materials, with no significant difference in usage between distance (95%) and internal (94%) learners. For the most part, Internet access is not a barrier to using the online materials. About half of the students printed the digital resources provided by the University for themselves 'regularly' or 'extensively'. Over two thirds of students read most of the material they are provided with in a typical course with distance students significantly more likely to read most of the material provided to them.

Overall, students prefer a mixture of printed and digital materials to 'all print' or 'all digital' with very few expressing a preference for these course designs. Notably, over 80% of respondents report that they prefer a digital component to their study. The ability to directly annotate or take notes on study materials was important to about three quarters of the students. However, students were more likely to read the study materials and make notes in a different document than to read and make notes on screen. Around 60% of all students agree or strongly agree that their ability to study has been enhanced by the digital materials. Most students rate the level of integration of digital learning resources within their course as satisfactory to very good. Lastly, most students believe that in the future digital study materials will become 'normal practice'. However, this figure should not be taken as unreserved support for greater digitalization of the learning experience, as there may be a degree in which students accept that digitalization is evitable, without wholeheartedly embracing moves in this direction.

The research shows that for most students the use of digital materials is acceptable and valuable. Nevertheless, an underlying contradiction exists as a majority of students still claim to prefer printed study materials even though they see digitalization as normal practice in the future. The telling point is that most respondents now expect their learning to be augmented by some form of digital experience. This response suggests that students are still in a period of transition from print to digital learning. The experience also shows that the move to digital study materials needs careful planning and communication and must be part of a wider strategy to integrate e-learning solutions throughout course design and institutional culture.

STUDENT PERCEPTIONS AND PREFERENCES FOR TERTIARY ONLINE COURSES: DOES PRIOR HIGH SCHOOL DISTANCE LEARNING MAKE A DIFFERENCE?

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At the secondary school level, growing numbers of North American students are taking advantage of online education opportunities. It is promoted as an alternative to traditional face-to-face instruction and as a flexible route for providing advanced level and specialized courses for students, as well as an effective means of coping with shortages of qualified teachers. Students who enrol in online learning courses at the secondary school level are generally not representative of the broader student population. Research has shown that these learners tend to be superior to their cohorts in terms of literacy and technology skills and overall academic abilities. They tend to be more self-disciplined and motivated, and more likely to be planning to attend university in the year following graduation.

To date, very few studies have followed up with online learners after they have departed secondary school and transitioned to tertiary-level studies. This paper is based on a research study carried out to investigate if there are differences between students who complete secondary school courses exclusively in traditional classrooms and those who complete secondary school courses in an online environment with regard to their perceptions of, and preferences for, online learning at the tertiary level. A total of 160 fourth-year undergraduate students at Memorial University of Newfoundland, Canada comprised the sample for this research. Each of these students had completed one or more online courses since entering university in 2006 and all were high school graduates from rural schools in the Province of Newfoundland and Labrador.

An online survey was designed to assess their self-regulatory skills in online learning environments as well as their expectations and perceptions of online distance education courses. The survey contained a number of multi-item scales representing latent constructs. The overall student response rate was 79.4%, about half of whom had completed high school online distance courses.

A series of one-way analyses of variance were used to examine the data and compare students who did not have any prior high school online learning experience with those that did. Overall, the self-regulatory learning behaviours that are frequently linked to positive experiences and outcomes in online and distance education courses were equally apparent in all of the participating university students regardless of whether or not they had previously studied online. Further, our findings suggest that, despite their earlier exposure to online learning, the attitudes and expectations of students who participated in online courses in secondary school do not differ significantly from those of students whose first encounter with online learning occurred in a university setting. This is contrary to claims made by a number of proponents of online learning at the secondary level. It was also notable that both groups held quite similar and somewhat negative views of distance education in terms of their expectations and satisfaction. Similarly, both groups did not view the quality of communication and collaboration in distance courses as favourable. Evidently, willingness to repeat the online learning experience at the tertiary level should not necessarily be interpreted as a preference for this form of learning.

The absence of significant differences between the groups on any of the variables measured may be due to student experiences with distance education at university level having a mediating effect on any impact that secondary school experience with online learning might have had. It is also possible that students who are attracted to and enrol in university-level studies hold similar views of online and computer-mediated education already.

FACTORS THAT AFFECT STUDENT ENGAGEMENT ON A TEACHER EDUCATION PROGRAMME

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This paper outlines how one on-line college, Hibernia College is addressing the need to promote reflective practice for students who are undertaking a graduate diploma that will qualify them as Primary school teachers. Increasingly teachers are expected to work reflectively and collaboratively with pupils, colleagues, parents and other professionals. In addition a social view of learning implies an increasing emphasis on collegial professionalism. In order to foster this aptitude for and disposition towards interactive and collegial professionalism, students need experiences of this in their initial teacher education.

Opportunities for collaborative and reflective engagement in ways that support students to make reflective judgements in the context of their diploma programme are examined. These opportunities occur in three phases, i.e. through engagement with the lesson content, through the methods by which the programme is delivered and through the assessment process of the programme.

Both quantitative and qualitative data were generated in order to establish the extent to which students optimised these opportunities for reflection and collaboration. The results from an analysis of this data identified student engagement to be more robust at some phases than others. Some tentative conclusions were drawn and a pilot study was initiated in order to identify aspects of best practice within the three phases. These include initiating a structure that ensures tutors will engage with students at different points of the programme. It also includes supporting tutors to be more pro-active as they encourage students to make links between their on-line lessons and their on-site or live tutorial sessions and that students are supported to share their ideas collaboratively with their peers. The technology that best supports these practices is described and discussed.

ON PREDICTING THE GRADUATION TIME OF BACHELOR'S DEGREE STUDENTS IN CHINA'S OPEN UNIVERSITIES

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This research uses the Open Education (Bachelor Programs) of China Open Universities as the sample, adopts data analysis and mining methods such as data querying, difference tests, correlation analysis, cluster analysis, etc., and tries to discover students' graduation rate and the semester distributing characteristics of graduation rate from three dimensions of university, grade, program and age-gender. The research results show as follows.

(1) In general, the graduation rates of the 5th, 6th, 7th and 8th semesters are much higher than other semesters and the accumulation of these four semesters' rates is 0.947 which means most graduates of the research sample graduated in these four semesters. Therefore, these four semesters are the main graduation semesters.

The graduation time span of all 18 batches of students is 13 semesters (less than 7 years) and the graduation time span of 72% of all batches is even 12 semesters (six years). Therefore, as for the maximum learning time, 8 years is too long. It could be shortened to 7 years and even to 6 years.

(2) From the dimension of program, the programs of humanity and social science (short for HSS) are the majority of Open Education programs of China OUs and have higher graduation rate, which demonstrates that HSS programs are more suitable to learn in the distance learning environment.

Through the cluster analysis of distribution data of graduation rates of all the programs in semesters, the program groups have their own characteristics respectively. Firstly, in Group 1 (in which the programs mainly belong to HSS), the graduation time span is shorter; the graduation rate is higher and the distribution broken line has a bigger head and a short tail, which demonstrates that students of Group 1 mainly graduated in the 5th, 6th, 7th and 8th semesters and few students graduated after the 12th semester. Secondly, in Group 3 (English programs), graduation time span is longer, graduation rate is lower and the semester distribution broken line has a spinous head and longer tail which demonstrates that students of Group 3 mainly graduated in one semester (here is the 7th semester) and the graduation rate of this semester is much higher than other semesters'.

According to the analysis result, if we want to raise the graduation rate of some programs such as English programs, we should pay more attention to the instruction procedure and strengthen the instruction and learner support service in some key semesters such as the 4th, 5th, 6th and 7th. In this way, we could shorten the graduation time span of these programs and raise the graduation rate at last.

(3) From the dimension of "age-gender", contrasted with the "gender" factor, the "age" factor has closer correlation with graduation rate and graduation time. Firstly, as the age increases, the graduation rate of "age-gender" groups decrease. The age and the graduation rate are negatively correlated. Female students group's graduation rate is a little higher than male students group's graduation rate. Secondly, the result of cluster analysis is mainly decided by the age. 20 years is the boundary of the two "age-gender" groups.

By analyzing the correlation of the graduation rate and "age-gender" combinations, some suggestions for instruction are brought forward as follows. Firstly, compared with younger students, older students (not less than 40 years) have more disadvantages in learning and need more instruction and help in learner support. Secondly, in the students groups whose age is less than 40 years, compared with female students, male students have more disadvantages in learning and need more instruction and help in learner support; in the students groups whose ages are not less than 40 years, compared with male students, female students have more disadvantages in learning and need more instruction and help in learner support. To sum up, we should strengthen the learner support according to different "age-gender" groups in order to ensure the equity of education results.

STRESS, ANXIETY AND BURNOUT SYNDROME IN STUDENTS OF A DISTANCE LEARNING PROGRAM: THE OPEN UNIVERSITY OF CYPRUS EXPERIENCE

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Distance learning seems to have a crucial impact on the social and emotional life of students. Within the framework of distance learning in Open University of Cyprus, the “Healthcare Management” department conducted a study regarding the levels of stress, anxiety and depression reported by the student population. The aim of the study was to record and determine the emotional state of the students and possible factors affecting it.

During the second academic year (2007-2008), a questionnaire was disseminated at the first and last student group meetings to all 142 students enrolled in the “Healthcare Management” course. All students present were asked to complete the questionnaire. The response rate at the first meeting was 74% of enrolled students and at the last meeting the response rate was 52%. Most of the participants were 30-45 years of age, female, and married with children. Most were pleased with their choice of particular course but in parallel felt that their enrolment in the course was a source of stress for them. Ten percent of students experienced stress and depression. In addition, more than one third of participants experienced high levels of burnout which subsequently decreases over time and in parallel, there is a decrease in the number of students experiencing high personal achievements.

The study concluded that regardless of age, studying at the Open University is a source of stress to the students, a finding that should be taken into consideration so that measures are taken to address this problem in order to decrease it. The study also indicated that there is a clear need for further research using specialized inventory tools and within the wider student population.

SUSTAINABLE LEARNING: THE POTENTIAL OF CLOUD COMPUTING FOR DISTANCE EDUCATION

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The evolution of information technology has had a large impact on the methods of Distance Education. We are already seeing changes in the way universities provide student email services through third parties and how applications like Google Docs and Skype have changed the way learners collaborate and communicate. Distance courses are evolving from pre-packaged instructional media to active facilitation of constructivist conversations. Cloud computing is touted as the next paradigm shift in organizational computing. This paper explains what cloud computing is, its benefits and risks, and how it is already beginning to change ICT provisioning for both education and research. We speculate on how this might impact on the sustainability, practice and organization of Distance Education.

Lower costs and flexible computing-on-demand are the two key advantages of cloud computing. Cloud computing can be an industrial scale replacement of the “cottage industry” approach to institutional computing that now exists within institutions and organizations. The capital costs of computing can be converted to much reduced operational costs. With the cloud, the physical space and the energy ICT consumes are no longer required, yet computing power is greatly increased. In addition, the elastic supply allows users to add or lower capacity on demand. Many universities are already moving student email to cloud computing providers, and saving hundreds of thousand of dollars each year.

It has been argued that cloud computing is creating “new IT [Information Technology]-enabled market constructs” and having a profound effect on management, particularly in terms of incentive structures and administrative processes. This poses challenges to business transformations from which the distance education community and other educational and economic sectors cannot escape. The shift to cloud computing provides an opportunity for distance education providers to implement and/or re-structure their online operations and decide what services to offer and how they will be provided.

While cloud computing can be used to lower the costs of providing a technological infrastructure for distance education, there will still be real costs; the economics of Cloud provision will need to be defined and fully understood. The cloud investment can reasonably only be realized with sufficient stable funding. Building a collaborative community around cloud computing might be a way to bring a large number of educational resources together to develop and sustain a coherent and cost-effective delivery model for adult literacy training that would benefit many. Collaborating on cloud computing might also enrich the cross-fertilization of ideas and talents to see a new range of educational services that require lots of computer power, for example real time translation into other spoken languages, student tracking and personalization of services, implementation of personalized learning environments within communities of learning, real time data-collection on field trips or instrumentation and visualization for chemistry labs. One project in Seattle is building software development environments in the cloud that are specifically designed to teach programming without students having to be physically present in a computer laboratories (Cappos, Beschastnikh, Krishnamurthy, et. al., 2009). The simplest notebook computer becomes a sufficient cloud access tool. When several colleges share such platforms everyone wins. Computing becomes more sustainable, and distant learners gain access to more powerful tools at lower cost. A wide variety of sophisticated visual simulations could also be developed and shared for realistic chemistry and physics experiments – reducing not only the cost of equipment, but also reducing the amount of chemicals and other materials that would find their ways to ground water or to landfills. Again, the distant learner also wins by being able to do the same experiments from any internet connection in the world.

The creation of an e-learning cloud has the ability to provide a transformational infrastructure that can provide learners a sustainable learning environment, one that will afford significantly improved opportunities to collaborate, share, and innovate and permit the development of an ever-improving and responsible future.

THE REHABILITATION OF LANGUAGE LABS IN MODERN FOREIGN LANGUAGE LEARNING – A GREENER, MORE SUSTAINABLE TREND IN THE 21ST CENTURY

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This paper aims to reflect on the crucial role language labs are able to play in today's foreign language learning. However, in our point of view, they still suffer from their past reputation as a preferred tool in the behaviourism current, which dominated the audio-lingual method in terms of the teaching and learning of foreign languages. The main goal of this paper is to discuss the several features of modern interactive language labs and to enhance their potential in the teaching of Portuguese as a foreign language in a non-immersion but still multilingual and multicultural context (USA). In fact, when it comes to the use of new technologies in the educational context, the use of language labs may reduce the physical distance between the home and target countries, besides becoming a more motivational and ecological way to teach and learn a foreign language, and contributing to the development of the students' four major receptive and productive skills, as well as their intercultural competence and awareness. Moreover, this green and sustainable trend can be put into practice by anchoring learning in an online environment, through assigning online tasks avoiding the need of printing, creating e-learning communities and also raising an ecological critical pro-active awareness for global issues like poverty, pollution, environment, deforestation and animal extinction in terms of syllabus content.

Therefore, the focus of this paper is to highlight the need for:

- changing the way language labs are still portrayed nowadays;
- setting out an innovative language lab perspective in view of the integration of learning strategies and styles (differentiated pedagogy);
- perceiving the teacher roles as learning contexts and activities organizer, facilitator and metacognitive agent;
- providing cost sustainable learning and teaching ideas, alternatives and strategies;
- enhancing the overall quality of student learning autonomy and experience.

The flexibility of the labs allows the teacher to create customized lessons either for the individual or for the group in hands, meeting the students' specific needs, besides developing all major linguistic skills, emphasizing on listening, speaking as well as social and digital skills, by also improving communication, interaction, collaboration and cooperation and a sense of global citizenship. Furthermore, the correct usage of language labs still implicates many challenges for the subjects involved in the teaching and learning process.

LEARNING ABOUT NATURAL HISTORY AND ENVIRONMENTAL EDUCATION THROUGH THE USE OF DIGITAL TECHNOLOGIES

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For many years, Natural History Museums (NHMs) are known as an environment that promotes informal science learning processes mainly for school visits, individuals and families. Therefore, there is a growing interest, worldwide, in the ways NHMs are used as learning environments and the technologies deployed to support informal science learning experiences. However, it seems that the abundance of digital content that is available in NHMs around Europe remains largely unexploited due to a number of barriers. In the last decade, much of the research on learning in NHMs was focused on: (a) the educational value of the science class visit, (b) the influence of class preparation to the visit, and (c) the factors that determine students' learning (Griffin, 2004). Little research has been made on how digital technologies may enhance learning in NHMs by allowing school teachers, museum educators and general visitors to organise, access and share learning activities that may be implemented during a visit to an NHM. A European funded three-year project entitled "Natural Europe: Natural History & Environmental Cultural Heritage in European Digital Libraries for Education" aims at connecting the digital collections of a number of European NHMs with European digital repositories such as Europeana¹ as well as exploring ways of designing, sharing and re-purposing formal and informal online learning activities through the digital collections of NHMs. This will contribute on creating sustainable ways of improving learning in informal settings by storing, searching and retrieving Natural History and Environmental educational content. To this end, the paper outlines the processes, methodologies and phases that will be adopted and followed by the project team in order to sustain collaborations between formal and informal education settings by using Information and Communications Technology (ICT) enhanced learning.

¹ Europeana's web site: <http://www.europeana.eu/portal/>

RESEARCH TO SUPPORT E-LEARNING

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Contextualization

Professors from six universities in Spain conducted a research project entitled Diagnosis and development of skills in the use of virtual communication tools for lifelong knowledge-based society. (SEJ-Reference No. 2004-06803) (I + D + i). The project was funded by the Ministry of Education and Science, and was carried out from 2004 to 2008. In this study we present different ways to communicate virtually such as e-mail, videoconferencing, blogs, chats and forums. These communication cores exchange allow us to interact with people from different parts of the world even if they are not really present.

Design and research methodology

The estimated sample was placed in 1200 surveys throughout the Spanish territory. The criteria of age distribution, gender and educational level on the basis of population according to the latest census were taken into account. The final sample included 1311 people, 602 men and 695 women. There is no record about the sex of 14. The sample in the investigation turns out to be representative throughout the different segments: age, training and employment according to statistical tests made. The tools of data collection developed (questionnaire protocol, interview guide and discussion group) allowed the use of a mixed methodology (quantitative, qualitative).

Objectives

1. To find out frequent uses of various online tools from a population well represented in age, profession, gender and training.
2. To identify the difficulties they encounter in their use and their causes.
3. To appraise the advantages in each tool in their professional, leisure and educational life.
4. To differentiate by gender, age, training and difficulty encountered in the use of tools under analysis.
5. To determine scientifically quantitative and qualitative usage rates by different population segments studied for each virtual tool.

Results

Difficulties faced by different virtual tools

Difficulties regarding different virtual tools include the following: Blog is the media where the communication speed shows the biggest drawback, and where interactivity is also the biggest drawback. Videoconference represents the virtual tool where access is the biggest drawback. Videoconference and blog show that manageability is the biggest drawback. For Blog, effective management is the biggest drawback. For the Videoconference, mobility options are the biggest drawback. The major drawback of the chat is that the communication context itself is valued as unsafe.

Advantages classification

Analyzed the texts in relation to the benefits, 80 contributions were found that cluster around the following positive categories: information, communication, speed, breaking the concept of space, knowledge, democracy, quality of life, consumption, continuing education, professional dimension, collaboration, economy, entertainment, interaction, updating, quality, creativity, culture, hypertext, innovation, networking, freedom, more analysis, young mindset, persistence, relationship, social mobility, global society and variety.

Disadvantages classification

We obtained 94 contributions that can be grouped into 27 categories, we highlight the following aspects: information misuse 11.94%, both in use as in the information dissemination; information saturation, 11.94% stated in an excess of information; monopoly 10.45% that influence people; inequality, 8.96%; lack of reliability, 7.46% causing insecurity in the consulted sources; irregularities, 7.46% which manifest themselves in illegal activities and abuses of economic transactions. Important in a way are also rapid changes misapplied that baffle, the illiteracy gap evident in large communities, the excessive and meaningless consumerism, the inequality within countries, the material disorder, the passivity, the isolation that causes in people, the insecurity, the changing relationships, the extra time required for its domain, the loss of privacy, constraints and resistance that create to certain ages.

Foresight

On trips, it is evident that the use of blog followed by the use of videoconference hold the lowest values. This fact leads us to consider its future potentiality, and short-term usability. Homes are life settings on incorporating new media. The use of videoconference in a smaller degree may be due to a greater technological demand and to their low cultural use at home. Nevertheless the reduction in cost can increase the use of this tool at home. Similar reflection is valid for professional environments to the growing diverse markets. As broadband comes through the country side we can expect a greater presence of virtual tools which will allow the arrival of formation on issues of leisure, health, consumption, citizenship, food, cultural activities, etc. to micro rural areas.

THE EFFECTS OF MULTIMEDIA ELECTRONIC TEACHING BASED ON STRUCTURALISM PROJECT APPROACH ON DEVELOPING COGNITIVE SKILLS OF UNIVERSITY STUDENTS

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Multimedia learning environment based on structuralism, involves students in the process of learning, significantly improves the cognitive skills concept of students. *In an experimental research, students of history field undertook designing a multimedia based on structuralism theory and project-based learning. In one semester, students worked on the project 45 minutes per day. The educational workshop had 10 computers, color scanner, digital camera, video camera and premiere, Photoshop and power point software as well as written sources and suitable books.* Research hypotheses: i) the multimedia learning environment based on structuralism increases educational motivation of students, ii) the multimedia learning environment improves cognitive skills of students. This research uses the semi-test research method with pre-test/post-test plan with control group. The statistics population was students of Payam Noor University of Tehran in 2009-2010, 40 of them were selected from the research center where the researcher teaches history. *Students designed a model in two-member teams. They scanned historical pictures and placed them in their program. They edited the pictures and ultimately put the pictures, voices, texts and film on power point software and produced a multimedia. The group members presented their multimedia. The measurement tools consisted of questionnaires, observation of behavior and individual and group functions. T test was used for data analysis. Analysis of tests showed significant differences between the pre and post tests scores. The findings showed that this learning environment facilitated and increased cognitive skills, educational motivation and interests of students in learning the course.* Agreement of findings and research literature and the findings of this research with the results of researches on this field, such as Slavin (1995), Sharen (1988), Johnson et al (1994), Johnson and Johnson (2000) (2001) and (2007), Anderson (2005), Santrok (202), Shekar and Fisher (2004), Slavin and Stevens (1995), Kenani (1999) and Ghorbani (2001) was checked and there has been agreement between results of this research and the research of above-mentioned researchers, showing that using participative learning is effective in educational progress. The results agreed with the views of Johnson (2007) and Molerian (1995) Suggestions: distance universities revise their curriculum and organize the syllabus based on structuralism approach and with respect to the electronic facilities and tools which are available in educational centers or will be provided there, use structuralism learning approach through involving students in the process of learning in order to help in the growth of their cognitive skills and academic improvement, particularly in information technology and communication development. A study must be carried out to find the education motif level of students in each course.

A SUSTAINABLE COMMUNITY OF LEARNING: THE CASE OF EL-GATE

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How can the learning experience of an on-line training course become a sustainable and enduring educational experience? How can onsite continuous training become more engaging and rewarding for the student? A possible solution for this is put forward in the study case of the EL-Gate on-line course and Community of Practices (CoP). In this paper we present and reflect on the main results of this experience.

EL-Gate – European Latin American Universities Cooperation Gate is an EU-funded project in the framework of the ALFA II programme, which aims at helping Latin American universities design and implement more effective and efficient university cooperation models fully integrated in the university organization charter and in the university development strategy, based on European best practices. To be able to reach its goal, the project team has developed a 120 hours fully on-line course in “University International Department management” with a 40 hours assisted project-work. Over 60 students working at IDs of European and Latin American universities and coming from 38 universities in 13 countries were accepted in the course, which counted also with 8 teachers and 5 tutors. The course was complemented by a web-based thematic CoP of IDs managers and staff from European and Latin American universities.

As part of the course design, a specific pedagogical model was developed and approved by all partners. This was a reference paper establishing a common pedagogical framework, given the much diverse pedagogical traditions and learning cultures involved. It defined common methods and selected typical tools to be used in the training course, favouring interactivity and cooperation. Being student-centred, the EL-Gate pedagogical model favoured each student would choose the best way to use available resources and to plan the study work, controlling both the pace and the progress of learning. Independent learning was complemented in each unit by peer learning and student assessment was based on a continuous assessment approach, complemented with a final team project. The online pedagogical approach used in the EL-Gate training course was also quite flexible, setting a preference for the extensive use of asynchronous communication tools available on the LMS Claroline. Forums were critical tools, because it allowed for the development of critical thinking skills and the sharing of knowledge and resources with peers. As facilitators of the learning process, teachers and the tutors were able to help the students in organizing their work and stimulating cooperation within the learning community.

Due to the very nature of the target group – active ID managers, most of the students did face many difficulties to complete assigned tasks within schedule, thus following very diverse work schedules from one another. In order to cope with this problem, it was experimented with success to redirect of the learning path so that it became adjusted to the diverse learning stages of the different entrants. This redirecting occurred at two levels: by introducing methodological changes in the course and by advancing the creation of the on-line CoP, which was foreseen to start only after completion of the course. In fact, from the start a great focus was attributed to guarantee the long-term sustainability of the learning process. This was to be assured by a CoP, which is itself based on the development of the co-ownership sense among the members and the promotion of their control taking. Critical to this timely decision was the close articulation between teachers, tutors and the manager of the course in monitoring student’s learning performance and pace.

Thus, by moving the entrants in the course to the CoP, it was possible to resume the rhythm of the activities and to ensure the course was sustainable, with its entrants becoming involved again. We may state that migration to CoP reactivated the involvement of the enrolled students and recovered for the training students who were at earlier stages of the course. In accordance, this mixed approach we have used close articulating a structured learning path and open social networking contributed to assure a more sustainable learning experience especially when dealing with working student groups. In our view, this continuum between a close and open virtual learning environment is particularly well suited to lifelong learning contexts.

VIRTUAL MOBILITY IN INTERNATIONAL WORK PLACEMENTS

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Here we will present the preliminary results of the EU-VIP project. This project is funded by the European Commission within the Lifelong Learning Programme. EU-VIP stands for Enterprise-University Virtual Placements. The project looks into the possibilities virtual mobility can offer in the area of international work placements. The integration of virtual mobility activities in international work placements can vary on a scale from very limited to a fully virtual work placement, in which the trainee never has physical contact with company staff.

Looked at from a time perspective, we can distinguish 3 different phases in a work placement: before, during and after the placement. Every phase has its own attention points and issues.

Before the work placement all preparations need to be made to ensure a successful placement. This means in first instance the design of the concrete placement in line with solid pedagogical foundations. The EU-VIP partnership supports the ideas underpinning work-based learning. In this phase it is essential to plan the placement thoroughly in all its aspects. Ideally all of these agreements, responsibilities and procedures are in the end part of a written agreement between all actors.

During the placement the focus will be on the development of knowledge and skills through practical and authentic tasks. Next to discipline specific competencies the student will ideally also have the opportunity to work on generic skills like international, teamwork, social and communication skills. To stimulate this learning process coaching and feedback from academic and company mentor are essential. All coaching activities also have to be in line with each other.

After the placement, evaluation is the central theme. Firstly there is the evaluation of the student according to the formulated criteria, but the cooperation between higher education institution and the company/organization should also be assessed.

The EU-VIP partnership has so far identified the following critical success factors for the integration of virtual mobility in international work placements:

- Students undertaking a work placement at-a-distance through virtual mobility activities need to have good meta-cognitive skills.
- Intrinsic student motivation needs to be stimulated and fed throughout the placement, e.g. by authentic and valuable tasks that are in line with the student's competencies.
- Virtual(ly supported) work placements need to be designed and planned carefully in all their aspects.
- It is advised to draw up a communication protocol before the start of the placement.
- Face-to-face contact at some point or on some level is beneficial to the success of the activities, because it builds a mutual feeling of trust and responsibility. When it is not possible to meet face-to-face, the choice of technology seems to have an impact on the degree of involvement. A tool like video conferencing creates a much more personal interaction than for instance an asynchronous tool like email.
- The employer should implement concrete strategies to stimulate organizational socialization, also in a virtual setting.
- The availability of technology support before and during the placement seems to be a critical success factor.
- To realize the development of intercultural competencies through virtual mobility, the conditions for success are: explicate to students what 'intercultural competencies' are stimulate student reflection on the development of these competencies; focus on written communication, differences in business culture and negotiation styles; make sure students have previous experiences with virtual communication.

The framework and conclusions presented here will be discussed elaborately in the guidelines on integrating virtual mobility in work placements. The EU-VIP partners will present these definite guidelines by fall 2011.

ASSESSMENT OF SUSTAINABLE INTERCULTURAL COMPETENCE INCREASE IN TRANSNATIONAL INTERNSHIP

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Globalisation as Context

Globalization and new technologies are heavily impacting workplace and structures, creating demands not only on the employees but on the employers as well. The need for new skills and competences are emerging, such as proficiency in foreign language(s), mobility, flexibility, empathy and abilities that support effective strategies in working in and with a culturally and linguistically diverse team. In responding to these modern challenges, institutions of higher education are beginning to understand the necessity of embedding transnational placements in the curriculum which would provide students the opportunity to gather real work experience thus enhancing their employability. However, while the domain-specific skills are considered as integral part of transnational placements, the potential increase in intercultural competence is very often only assumed. The authors argue that this is a misconception. As academic literature on the subject reveals, being proficient in a foreign language does not necessarily equate to proficiency in the culture of that language. Further, both graduates and employers are often confused and unsure how to verbalize and communicate such competence gain.

The SKILL2E Concept

SKILL2E is a multilateral university-enterprise project funded by the European Union that aims to address the issue of sustainable intercultural competence acquisition and successful integration of students in transnational placement. The main approach of the concept is to ensure that issues and problems concerning intercultural competence gain during the placement are addressed from the perspectives of three main stakeholders: higher education institutions, students and enterprises. It rests on three main pillars: (i) the usage of an on-line assessment instrument; (ii) a support structure including pre-departure training as well as an on-line platform for self-reflection; and (iii) a cultural mentoring concept for enterprises. Aside from these, a comprehensive evaluation model will be developed to measure the effectiveness of the concept. The project is a cooperation of six institutions of higher education and four enterprises from Europe reflecting a cross-section of European culture, well-suited for this multi-perspective approach and for generating useful and sustainable results beyond the project lifetime.

This paper focuses on the on-line assessment instrument by first outlining the theoretical framework and then the concrete implementation scenario. In this context, sustainability means that both students and enterprises will benefit and utilize the placement experience after it has been completed. Accountability refers to the method used for evaluating learning outcomes and the related competence gain and thus, in return, contributes to sustainability. The term 'competence' is used within the project context and in this paper as a comprehensive overall term including a set of skills, attitudes as well as knowledge and understanding. Assessment in the context of SKILL2E is a crucial component that needs to be integrated in every aspect of the learning process of the students thus a direct linkage between assessment and explicit learning goals and objectives is necessary. The Developmental Model of Intercultural Sensitivity (DMIS) and the Culture Shock Model are used as bases for the needs analysis, and in designing training measures and pedagogical intervention. Based on these two models, various models of intercultural communication theories and specific criteria defined during the planning phase of the project, the Intercultural Development Inventory (IDI) has been selected to assess the intercultural competence gain. IDI is a multipurpose assessment instrument which has been tested for validity and reliability.

TRAINING RURAL POPULATION ON USING ICT SERVICES

Argiris Tzikopoulos, Anna Zoakou, Ellinogermaniki Agogi, Greece

In this paper we introduce the RURALeNTER project – a GRUNDTVIG initiative that aims to demonstrate an innovative approach that will help European adult rural areas population to acquire and reinforce skills and knowledge so that they make best use of the new opportunities offered by the ICT technologies. The project will take place in four European regions (Greece, Austria, Spain and Romania), and will support training of rural population on the use of ICT services. The project aims at improving the quality, attractiveness and accessibility of the opportunities for lifelong learning for rural areas citizens. Moreover, it involves population of all ages in lifelong learning opportunities, including disadvantaged groups regardless of their socioeconomic background. To do so, the project studies existing e-services for these rural areas and their level of awareness, and will develop and evaluate a vocational training curriculum focusing on how to prepare rural population to use and exploit cases of e-services. In addition, a Portal of e- services for rural areas will also be deployed.

The main RURALeNTER idea is to support the development of innovative ICT-based content, services, pedagogies and practices for lifelong learning for adult population in rural areas. Related studies around Europe indicate that the citizens in these areas have fewer opportunities than the citizens of urban areas, and this is reflected to their educational profile and qualifications. Therefore, they are considered as candidate for discriminations and their training should be supported. Additionally, the fact that many services are physically located in urban areas is a discrimination that the project tries to address. Thus this project aims to help improve the quality, attractiveness and accessibility of the opportunities for lifelong learning for rural areas citizens. Also it will evolve population of all ages in lifelong learning opportunities including disadvantaged groups regardless of their socio-economic background.

RURALeNTER is clearly describing its main objectives, as well as quantifies its expected results. The workplan focuses entirely on developing a training framework that can lead directly to improved lifelong learning outcomes and greater access to quality adult education and training for all with a desire to learn. It outlines a vision of what can be achieved with adequate investment, and provides a concrete set of guidelines and recommendations that can achieve that vision – a plan with clear targets, clear objectives, clear priorities, and a management plan that will ensure continuous evaluation and feedback. In each WP, an appropriate methodology is used in order to produce these results, and address the stated objectives. All activities are well scheduled, and indicators to measure their results will be defined at the beginning of the project. The first step of the project is to prepare a Management Structure & Plan that will describe the management structure of the project, and will define the quality assurance procedure to be followed to ensure efficient, balanced and transparent cooperation while active planning and control of the project will make possible to measure interim results, to forecast the final result and to take advantage of experiences that may be useful to future expansion and projects.

Finally it should be stressed that RURALeNTER aims to transfer knowledge and best practices from countries advanced in ICT services to ones where such services are yet under development. This cross-regional and cross-disciplinary partnership assures that the project results will be developed, validated and promoted in a wide range of actors and policy makers.

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THE ASSESSMENT DILEMMA – ‘LESS TIME’ AVAILABLE, ‘MORE FEEDBACK’ NEEDED

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Assessment is both relevant and important within education systems. This paper explores the issues of assessment by drawing on one of its more widely used formats within higher education, the take home essay. The essay contextualizes the metaphorical dilemma, that of ‘less time available’ and ‘more feedback needed’, thereby illuminating the realities together with the challenges facing both tutors and their learners in contemporary educational contexts.

Essays often contribute to the overall summative component of specific modules of study. While they provide a valuable opportunity for enhanced learning through the provision of feedback and feed forward, there are issues surrounding their use.

Assessment determines the nature of what is learned. However, a poorly aligned system results in ‘inappropriate surface learning’ or ‘negative backwash effects’ i.e. surface learning to meet assessment requirements as opposed to the learning objectives of the syllabus. Similarly, assessment mechanisms need to be of the type that promotes intended learning outcomes. In other words an emphasis on process tends to produce reliable indications of mundane learning, whereas assessment of complex and divergent thinking skills may require a different approach. Tutors are also faced with added difficulties in terms of trying to support learning. The dilemma of trying to cater to the needs of larger, and increasingly diverse, classes with more assessment demands and the tendency of ‘bunching’ of assessment towards the end of the year, translates into less formative assessment, less tutor time, less and possibly slower feedback, all potentially limiting the opportunities for learning to occur.

Research indicates that a greater mixture of course work produces higher grades overall. The type of formative assessment used may depend to some extent on class size, with assessment methods like multiple choice test items sometimes recommended for larger groups. Freeware authoring tools like Hot Potatoes can be used to generate many different types of short answer exercise thus providing instant feedback. Examonline, an online e-assessment tool, provides different Applications making it possible to create online tests and assessments, again with the provision of instant feedback to learners. Other forms of assessment may include reflective journals, case studies and presentations. Asynchronous communication forums, with clearly defined ground rules for engagement, facilitate learner involvement in collaborative group work, thus positively influencing learning outcomes. Moderated asynchronous collaboration also provides the tutor with an opportunity to provide ‘anticipatory feedback’ to students, thus scaffolding the learning process. As they collaborate, they have the opportunity to provide feedback to each other. Learners also have the opportunity to reflect on their own learning. Both peer and self assessment can be applied across many situations.

Finally, it is good to remember that greater opportunity for feedback does not necessarily improve learning. Learners may actually find feedback quite challenging. Research indicates that the language of assessment is often confusing with some learners who achieve high results not knowing exactly how or why – vital knowledge that would enable them to do so again. The use of ‘exemplars’ demonstrating a given standard, thus showing learners how similar questions might be answered, how a given standard might be achieved, as well as identifying what not to do in terms of approach, may help them to identify what that given standard is. Knowing about learner background and aspirations may also be important, particularly in the current era of increased diversity. For example, a learner whose first language is not English may face particular challenges in terms of understanding assessment techniques and feedback mechanisms.

The essay is an important assessment tool providing opportunity for feedback and learner development. As with all tools it has its limitations and as educators we need to be aware of them to ensure that maximum benefit is delivered to our learners. For those of use who teach, we should not just strive for excellence in how we teach, assess and provide feedback we should also be aware of what it is like for those who learn. We should remember that, “to the teacher, assessment is as at the end of the teaching-learning sequence of events, but to the student it is at the beginning” (Biggs, 2003, p. 141).

EXCELLENCE FOR ORGANIC FOOD? A QUALITY ASSESSMENT CONCEPT FOR AGRO E-TRAININGS

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In Europe ICT supported knowledge management, sharing and training is entering the field of agriculture more and more, specifically in high risk and emerging areas where training demand is very high, like organic agriculture and the larger field of sustainable development. These emerging areas aiming at the reduction of natural resource use, soil erosion and improved sustainable production and consumption have impact on training and learning system. Specifically the conversion to organic production has become a knowledge intense topic and competence critical area and is directly connected to the availability of expert's support and structured training. Many European countries already have organic training initiatives, but of unknown quality and effectiveness.

In the framework of the large European initiative CEROrganic, an ambitious quality certification scheme for technology enhanced training in the field of organic agriculture has been developed. It is combining the European Quality Assurance Reference Framework (EQARF) with an indicator based quality label for e-learning to comprehensive Quality Framework. First we will clarify the concepts of Quality Assurance (QA), accreditation, evaluation and certification to shed light to the terminology in this field in lifelong learning processes. We will then present the CerOrganic Quality Framework starting with the EQARF which targets Quality Assurance at system and provider level. As the CEROrganic Quality label targets the course/programme level, the EQARF has been merged with an indicator based quality label, called Open ECBCheck.

Open ECBCheck is a new accreditation and quality improvement scheme for E-Learning programmes and institutions in the field of professional training initiated by InWent – Capacity Building International, Germany and the European Foundation for Quality in E-Learning (EFQUEL) officially released 15.02.2010. The Open ECBCheck quality concept supports organisations to measure how successful their e-learning programs are and allows for continuous improvement through peer collaboration and bench learning. The participating organisations become part of an open peer-review community in which they share tools and guidelines and in which they are able to obtain a peer-review from partners of the community.

Both concepts are merged to constitute a new quality certification framework. As the EQARF is directed towards the field of QA at Member States systems levels, the CerOrganic quality assurance process for the Training of Trainers will therefore only be based on four stages of the EQARF quality cycle. We adapt the EQARF to the operational quality model of Open ECBCheck in order to arrive at a combined model which helps course developers and providers to determine quality criteria they need to consider at programme or course level. We overtake the four stages from EQARF and merge them with criteria from Open ECBCheck. This has been done through merging the model with the four steps, the EQARF cycle is suggesting, derived from the Deming-Cycle, also used in CQAF. All in all the following function can thus be performed with the adapted quality concept:

1. Development oriented view: open ECBCheck can be used for development purposes because the open ECBCheck criteria are presented according to the development stage from the EQARF cycle.
2. Assessment oriented view: Open ECBCheck can be used for self-assessment of training providers in order to determine strength and weaknesses of their program and course certification purposes when self-assessing.
3. Certification oriented view: Open ECBCheck can be used for certification if a self-assessment is reviewed and confirmed through an external review expert.

The qualitative weighing function of the tool allows moreover tuning it to the very requirements of the field of OA and AE which will be explored through the practical application of the tool to the OA course which is developed in CerOrganic.

TRANSFORMING TEACHING AND LEARNING IN COMPUTER SCIENCE: MAKING EFFECTIVE USE OF PEDAGOGY TO FOSTER GOOD PRACTICE

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Acknowledging the contribution of Ellinogermaniki Agogi

Computer science has a major impact on the teaching and learning of many educational subjects where there is a high expectation of computer literacy but in computer studies, programming is more than just technology literacy. The high level of abstraction that programming courses involve may cause difficulties in teaching programming courses as well as the capacity for students to understand the abstract nature of computer languages. For this reason, the pSkills project (developing programming skills by means of modern educational programming languages) aims at exploring pedagogical approaches combined with learning technologies to enhance the teaching of programming courses. This paper aims to highlight the different characteristics of the Computer Science curriculum in four European countries. In order to define the different curriculum characteristics for each country, the curricula were compared to a common reference and the subsequent data collection methodology described. The various differences between the curricula as well as the educational requirements for each country are discussed for their impact on computer science learning and implications for the project. This is important for adapting current computer science curriculum by suggesting courses relevant with the teaching of educational programming subjects using digital tools as a means of sharing and re-using programming courses within a particular context.

The 'design' process in the teaching and learning of programming courses focuses on the central role of developing students' skills and abilities to apply their knowledge to real problems while at the same time generating coherent computer programs. Facilitating the process of learning design for programming courses is essential for decreasing the cognitive difficulties students face in their effort to engage in programming. This paper explores the use of educational programming languages (EPL's) within a pedagogical framework as an effective way to decrease the difficulties students face and simultaneously increasing student motivation in this field. The second phase of the project discussed in this context is to outline the process used to identify and select the most appropriate EPLs for computer science at the secondary education level in European countries. There is a nexus between the selection of EPL's and learning design and pedagogical praxis.

The documentary analysis clearly showed that the focus of computer science in the compulsory curriculum was on computer literacy in three countries with one country having no formal element of programming at all in the compulsory curriculum. Also apparent was that most programming topics, according to the IFIP curriculum, were taught in specific post compulsory schools. Whilst the purpose of the analysis was to establish the status quo and not be critical of education ministries, it served to demonstrate the lack of student immersion in programming in the core curriculum. Factors influencing the determination of the core computer science curriculum range from a focus on the ECDL to a traditional teacher centred approach combined with the manipulation of programs considered as predetermined. In pursuing an alternative approach, the main purpose of this paper outlines the theoretical underpinning of teaching and learning with EPLs, and argues that, to be comprehensive, curriculum design for programming courses must consider perspectives that lead to specific ways of teaching programming as well as the introduction of programming into the core curriculum. The pSkills project approach can significantly improve training/learning methods and motivate students by moving the focus from the complexity of language dependent syntax to the possibility of developing efficient core programming skills reducing the usual difficulties the students meet with abstract concepts. This model can further evolve through mentoring and practice by perceiving how teachers design for learning, how they stimulate a learning environment and assess learning outcomes and how they share effective designs with others. This ongoing transformative engagement with teaching may provide an incentive to reflect upon the different aspects of learning design and then choose a software tool that will support the assembling of courses, activities and learning resources.

Acknowledgement

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HOW TO ENSURE QUALITY OF E-COURSES BY MOTIVATING AND AWARDING TEACHERS?

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While e-learning is spreading from the task of few innovators to the task of majority, quality assurance is becoming increasingly important. Quality assurance in e-learning is a complicated problem as it has to combine evaluation of target subject field with pedagogical issues together with aspects of information and communication technology (ICT).

In Estonia e-learning is promoted and supported by the e-Learning Development Centre – an organisation under the umbrella of the Estonian Information Technology Foundation, which together with universities governed by the public law results in an interesting combination. An e-learning quality task force, organised by the e-Learning Development Centre and consisting of experienced e-learning specialists from colleges and universities, has been working for 3 years now. The task force has created a handbook “Instructions for creating a quality e-course”, introduced and implemented the quality label, developed a process for its attribution, trained evaluators etc.

EXTENDING THE CONCEPT OF ALPS CETL COMPETENCY MAPPING AND INTERPROFESSIONAL ASSESSMENTS PROCESSES TO ENHANCE STUDENT LEARNING AND EMPLOYABILITY SKILLS BEYOND HEALTH AND SOCIAL CARE

Catherine Coates, Leeds Metropolitan University, Julie Laxton, The University of Leeds, Jill Taylor, S.V. Smith, Leeds Metropolitan University, United Kingdom

This paper discusses how the development of the ALPS common competency maps for communication, teamwork, and ethical practice has led to the adoption of this process by other Faculties and how the associated interprofessional assessment and e portfolios have been accepted by practice educators and institutions.

Assessment and Learning in Practice Settings (ALPS) is a collaborative Centre for Excellence in Teaching and Learning (CETL) comprising five Higher Education Institutions (HEI) with proven reputations for excellence in learning and teaching in Health and Social Care (H&SC). The CETL funding ended in September 2010, however additional funding provided by NHS Yorkshire and the Humber has enabled ALPS colleagues to continue the mapping work to include Enterprise and Patient Safety maps.

Central to the practice of all of the professional groups represented by ALPS is a high level of professional competence in communication, teamwork and ethical practice. In order to make explicit this pretext the ALPS CETL decided that mapping these common skills would enable students to navigate their way through the professional competencies allowing them to gain the confidence and competence in practice settings (Holt et al., 2010).

ALPS developed an e-portfolio tool to which the student could publish their completed tools and any relevant supporting documents and gain feedback from their tutor back at their University, (Taylor et al., 2010) further perpetuating the learning process and enabling the tutor to evaluate the students progress.

The ALPS competency mapping process was equally relevant to make explicit enterprise skills in the curriculum at Leeds Metropolitan University. The Institute for Enterprise CETL supports and promotes enterprise education within the University and with key external national partners. Its small team has strengthened and developed enterprise education in the last 5 years through development of new courses and modules, collaborative projects and student led events.

The Patient Safety mapping work, is led by Catherine Coates and Julie Laxton, and has attracted many local experts in the field of patient safety and aims to complete this new ALPS map for a consultation event in May 2011. The map will have the same structure as the original ALPS maps and the enterprise map illustrated above with statements grouped around 4 clusters including recognition of a safe practice environment, the students responsibility for patient safety acting within their scope of practice, their responsibility for documentation and defensible patient records and how their effective communication and teamworking ensures patient safety.

From our experiences with ALPS and other mapping groups working across many diverse professions and complex concepts there are a few 'top tips for success' that may enable subsequent projects to benefit from our experiences.

The challenge for ALPS is to sustain this creative approach in today's economic climate, and whilst the ALPS processes fit the current need to enhance quality whilst maximising productivity and innovation the financial implications of implementing such a strategy across the wider student population will be a very demanding but potentially productive achievement.

SUSTAINABILITY AND EFFICIENCY IN CREATING EDUCATIONAL SERVICES AND ADDITIONAL PROGRAMS

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University of Applied Sciences Zwickau, Germany*

Ensuring sustainability is very important for all recent and future activities in developing new methods and programs of education and training. It is the basic requirement for add-on educational and training programs by making complex offers in the framework of university's career service using new and expensive systems and technologies. The history of career services at German universities is in contrast to British or American universities rather young. In 2009 the pilot project "Job Factory – Career Service" was set at the University of Applied Sciences Zwickau. The career service imparts knowledge on necessary interdisciplinary and subject-related skills and also information about study and vocation. Main focus is to distribute the learning content via flexible e-learning modules. Right at the beginning of the project design considerably thoughts of sustainability were included. Especially the value added chains of the e-learning offers are liable to a comprehensive concept of sustainability and leads to their long term integration in the university system. The contents can be generally transferred into the standard catalogue. Due to the modularization single aspects or complete packages can be used for advanced training blocks, as a part of courses or even for the development of independent study course models. Furthermore the full paper describes the experimental design of study course models via case studies using the example of project management and the modular content configuration as an approach for efficiently resource management.

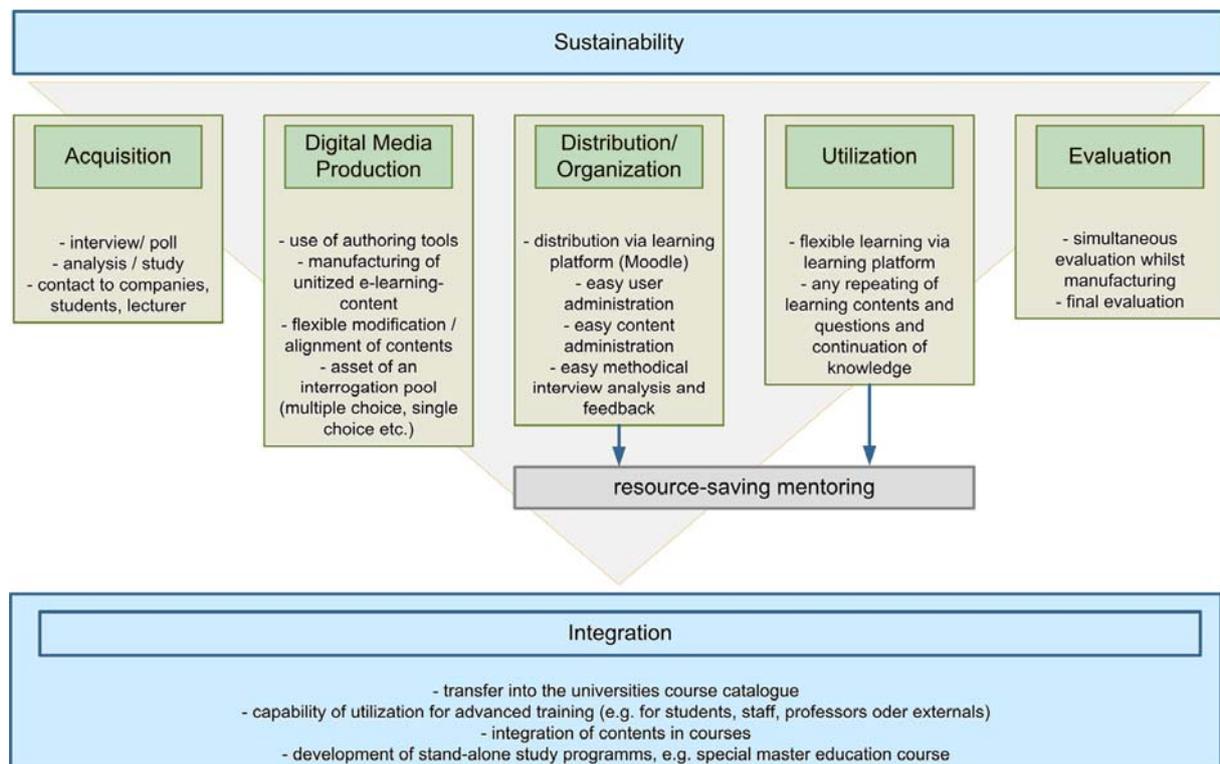


Figure 1 Sustainability as focal point in the value added chains of the e-learning offers [Job Factory – Career Service]

MY TRUTH, YOURS AND OURS – HOW TO BRING TOGETHER THE QUALITY STANDARDS OF UNIVERSITY STUDENTS, TEACHERS AND THE HIGHER EDUCATION INSTITUTIONS

Thomas Kretschmer, Innovation in Learning Institute (ILI), Germany

The participative web allows, animates and sometimes forces the users to produce opinions, blog posts, videos, audio files, comments, recommendations, tags, pictures, contributions, etc. etc. – user generated content (UGC). In terms of traffic, experts estimate that more than 70% of all data circulating in the internet fall into this category.

Although this has led to substantial improvements in the field of informal learning, institutions in the field of formal education and training are still uncomfortable when they try to exploit the potential of UGC – or even question and neglected that there is such a potential at all.

Nevertheless, more and more universities animate or even demand from their students the production of collaboratively produced content. The quality indicators used to assess the outcomes of such activities are relatively homogeneous for both students and lecturers:

- Embedment/background of information (sources)
 - Existence of references; quality of sources;
 - User ratings; opinions of friends/peers;
 - Data about the author (e.g. CV).
- Individual appropriateness
 - Usefulness for my purpose;
 - Clarity and logical sequence.

Nevertheless, the practice and the attitudes of university teachers and students differ significantly in many aspects concerning the use of Web2.0 applications for the creation of content within the university environment.

To match the quality expectations of learners, teachers and the institution, a three-layered quality framework has been developed and piloted. It is based on peer-review, self-evaluation and communication flow between the different stakeholder groups.

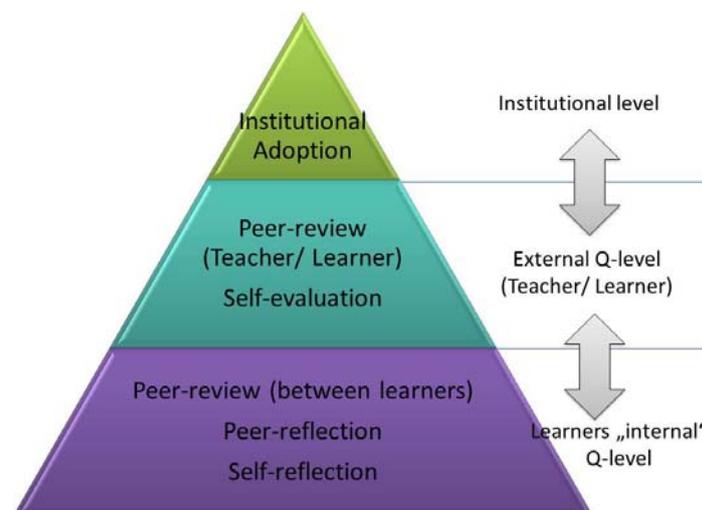


Figure 1 Three-layered quality framework

Reports from the 6 pilot sites and results from the online survey (with about 500 participants) will illustrate the practicability of the proposed model.

ON-LINE LEARNING AND PERFORMANCE SUPPORT IN ORGANIZATIONAL ENVIRONMENTS USING AN EPSS

Eran Gal, Rafi Nachmias, Tel Aviv University, Israel

EPSS (Electronic Performance Support Systems) is a method for on-line learning and performance support applied in organizations for the last 20 years. EPSS integrates learning as well as performing of a task in to a single action. It does so by providing information and guidance regarding the task according to a specific need and situation, thus allowing learning while working.

Up to now, only a few effectiveness empirical researches have been conducted proving EPSS abilities to support task performance while the ability to provide effective on-line learning remains questioned. The current research goal is to assess EPSS effectiveness for both learning and performance support considering a number of primary organizational factors including work/learning environments. The study included 294 service representatives of a large communication company implementing EPSS solutions for the last few years. Measurements were conducted in the authentic work and learning environments where every day service scenarios were performed using the EPSSs.

Finding indicates EPSS effectiveness is highly dependent on organizational environments and user experience. Findings suggest a new perspective on former researches which claim EPSS superiority and others who disputed its effectiveness altogether. The research conclusions help form development and implementation guidelines for both learning and performance support personnel by matching EPSS strategies to users' attributes and organizational environments.

PROFESSIONAL USES OF WEB 2.0 IN WALLOON SME'S ARE SHAPING UP!

Hélène Raimond, Walloon Agency for Telecommunications, Belgium

Boom of social networks and of cloud computing

3.5 million. That is how many Belgian Internet users have created their own profile on Facebook. Half of these social network users are aged between 18 and 34. Moreover, 23% (+5 points compared to 2009) of Walloon businesses having a website are present on at least one social network (mostly Facebook). These figures prove that this is much more than a fleeting fad. The general public is moving forward from strength to strength in the way they use the social media. Businesses on the whole tend to be more wary, vacillating between the necessary inclusion of these media as part of their communication and staffing policies, and banning their workers from using these technologies (50% of Belgian businesses are said to have banned staff from accessing Facebook during working hours). The success of these social networks is based on the content generated by their users. From the private sphere, they are sweeping into the business sphere, not the other way around, which is the key to Web 2.0.

The professional contours of Web 2.0

For the first time sustainability, learning and business efficiency depend on an efficient use of ICT in the business context. Therefore, will economic constraints drive Walloon SME's to adopt ICT faster and deeper in their core business? To answer this fundamental question, we need to examine a number of key concepts of the new uses of Web 2.0 in the world of trade and industry:

- Cloud computing: For ...or against?
- Facebook within the company?
- Should businesses maintain a presence on the social networks?
- Can Web 2.0 help smaller-scale organisations to provide training to their employees?

A new approach

Today, a business with less than 50 employees (i.e. 94% of Walloon enterprises) could very well envisage a new approach to its information technology, even if it appears positively revolutionary. This approach enables a large portion, if not all, of the costs and risks involved in company-owned information technology to be outsourced, as everything comes through the browser in Web 2.0! In the meantime, in order to be able to implement Web 2.0, the company will need to adapt its management style in accepting greater autonomy on the part of its employees. The latter will be increasingly managed in terms of targets and objectives whilst becoming more mobile, thanks to the use of extremely mobile technologies.

Web 2.0 is becoming a reality under the joint pressure of economic constraints and sustainability challenges. However technological change is not easy to put in place for businesses that need to reckon with what already exists. What already exists is a mixture of information technology solutions stacked together over the years as the need arose, if not an ERP application that governs business operations from the back office. It is true to say the offering is controlled by the market leaders in favour of a wider standardization, but also of a professional quality of services and related security aspects. Today, very few of us would even contemplate building or repairing our own car ourselves. The same applies to the area of information technology where the quality and variety of the offering that is being held out "in the clouds" enables businesses to outsource the risks and costs involved in the majority of ITC investments. Only enterprises that have very specific needs and requirements will remain patrons of expensive, low mobility custom-built IT solutions that shut out the outside world.

EMBEDDING TEACHING QUALITY ENHANCEMENT: PEER SUPPORT AND COLLABORATIVE OBSERVATION ONLINE (COOL)

Shirley Bennett, Patrick Lynch, University of Hull, Sue Lee, Staffordshire University, United Kingdom, Lyz Howard, Department of Health & Social Security, Isle of Man

Peer observation, is now well established within UK Higher Education Institutions (HEIs) with respect to classroom teaching, but relatively unknown online. A new imperative arises with the expansion in computer and internet usage across society, government drives and HEIs' cited wish to enhance the student learning experience and meet student expectations. Extending peer observation into the online context represents one strategy to provide situated professional development to meet the needs of teaching staff, many of whom have little personal experience of online learning and/or teaching when embarking on online teaching or support.

A series of online peer observation projects and pilots at the University of Hull and Staffordshire University reflected Gosling's third peer observation model. Assumptions of equality or mutuality, two-way dialogue for learning around a negotiated observation 'agenda' and non-judgemental, constructive feedback were reflected in the terminology adopted: Collaborative Observation On-Line (COOL) in Hull, and Negotiated Online Peer Observation (NOPO) in Staffordshire. The role of the online component varied within the overall course design, as did participants' experience of using a Virtual Learning Environment within teaching. Project evaluations and research into participant experience took the form of qualitative research, approached from an interpretivist perspective.

Findings demonstrated that the participating teachers valued the opportunity for online peer observation, reporting benefits in terms of confidence, affirmation and development of online practice and exchange of ideas, learning from observing as well as from being observed. They show that online peer observation may address a need for ongoing support, professional development and peer learning as staff gradually develop their practice and embrace or experiment with different approaches to the online elements of blended or online courses.

Nevertheless, aspects of the nature of the online context bring new challenges and opportunities for the online peer observation process. New challenges are complemented by new opportunities to implement observation in ways not easily possible within physical classrooms, across boundaries of place, discipline and technology, at times convenient to participants, and retrospectively or concurrent with ongoing activity. Findings also suggest that moving peer observation into the online context must accommodate a broad range of participant objectives and motivations for engagement.

The motivations and preferences of both those being observed and those observing were found to be more complex than anticipated. Some participants did genuinely engage in the process as captured in Gosling's Peer Review model however, participants' motivations were found to span all three of Gosling's models. In fact findings suggest the need to broaden the framework to include a fourth model, tentatively labelled the 'apprenticeship model', in which the observation is undertaken specifically for the developmental opportunity offered to the observer rather than the observee. Given current imperatives to move beyond early adopters of eLearning this it may be a useful additional model to add to the peer observation framework, reflecting a useful introduction to online teaching / support for staff who are new to this area of work.

The new framework is in draft format but adapts existing schemas in recognition that with respect to peer observation of online practice, staff motivation for engagement may vary according to levels of experience in teaching / supporting students online, changing technologies and/or adoption of evolving online practices. We would argue that an extended framework of this nature, with inbuilt flexibility to accommodate both varied and changing motivations for engagement in online peer observation is vital if online practice is to be mainstreamed if we are to accommodate the constant introduction of new technologies and their evolving exploitation for teaching and learning.

SUPPORTING ICT SITUATED LEARNING AND VIRTUAL SKILLS REHEARSAL IN WORKFORCE DEVELOPMENT

Stephen Farrier, University of Edinburgh, Keith Quinn, Scottish Social Services Council, United Kingdom, Alan Bruce, Universal Learning Systems, Ireland, John M. Davis, Nick Bizas, University of Edinburgh, United Kingdom

The Scottish Social Services Council is the regulatory body for social services in Scotland. Supporting a workforce of 198,000 social service personnel, SSSC has a broad remit, everything from care of older people to early development childcare. SSSC must support the delivery of consistently high quality training and education for high staff numbers, geographically dispersed throughout Scotland. The subtleties and sensitivities of the issues dealt with present a unique challenge. Traditional e-learning solutions can go part way to address the challenges faced. SSSC have identified the use of virtual world/game technologies as a potential way in which these unique challenges can at least be partially met.

The aim of this process is to address the needs of professional learners across the care sector working with children and adults (mixed economy) in childhood studies and social work through a series of innovative transferable modalities that can be designed to meet different needs of different professional learners across the Scottish care sector. SSSC has embarked on a radical strategy to develop their professional (intellectual) resource. They are firmly committed to developing their staff working in diverse cultural areas and extended community practice fields.

SSSC have created a pathway of professional development that integrates work based learning and work force development as a key priority for its learning and development strategy. As part of the EU Transversal Research CREANOVA project experiment, SSSC addressed advanced learning solutions in the form of creative modalities and innovative learning design. It integrated social policy and bridging the digital divide as pre-requisites of policy capacity building through work force planning. This experiment is set within both geographical and demographic contexts of Scotland.

The experiment itself is focused upon transferable and adaptable creative learning modalities (solutions) that should be able to transfer across both professional and vocational/academic boundaries as well as across professional divisions related to childhood, community and family, as well as the elderly.

Professionals as learners involved in this experiment may be on different learning pathways, from seasoned professionals to qualifying potential professionals. This area was chosen as an ambitious and radical shift in thinking about learning as a creative and innovative ideal.

The purpose of this multi dimensional process of learning is that of the creation of a critical thinking reflective professional practitioner. The innovation is that of thinking differently about the social care professional community as *human resource* to that of developing this professional community as an *intellectual resource* that acts as a partnership with the political, educational and social communities. Enabling inter-professional working and relationships where the vulnerable citizen is at the heart of this experience.

The use of extended virtual learner communities enabled a reshaping of pedagogical values, ideology and patterns of professional learning. Blending hybrid androgogical/pedagogical approaches increased access and flexibility for both learners and learning facilitators. SSSC continues to develop a coherent response with clear management protocols to sustain professional learning capability. This has been seen particularly in relation to employers' abilities to reduce expenditure, providers' abilities to reduce waste in relation learning materials and the learner's ability to more clearly focus their effort. There are two themes resident within this philosophy: learning to adapt, and learning to learn.

SHARING STRATEGIES FOR A CREATIVE AND SUSTAINABLE LEARNING: CREANOVA IN THE BASQUE COUNTRY

Idoia Fernández, Pilar Ruiz de Gauna, Maite Arandía, Marta Barandiaran, A. Eizagirre, I. Etxebarria, E. Torres, A. Ezeiza, University of the Basque Country, Spain

The current social context, characterized by globalization, change and uncertainty, requires the research of the sense and meaning that creativity and innovation have taken in today's society. On the basis of this approach, the CREANOVA research has focused on four times: first, to redefine creativity and innovation; second, to interpret the conceptual frameworks and "best practices" in fields of VET, Adult learning and Work Based Learning in the Basque Country, to identify the factors and conditions that are present; Third, to develop an interpretative framework that encompass the meanings and elements of the entire project. Finally, to design, develop and evaluate an educational experience in the Basque Country in order to collect evidence about this theoretical model.

We, in CREANOVA, understand Creativity as a human ability (with ontological, cognitive and social bases) to produce new ideas and to solve problems in different ways. This capability develops in close interaction with the context and is associated with the ability to learn in changing environments.

On the other side, we understand Innovation as a successful response to the needs of social nature, defined in terms of greater equity, sustainability and equal opportunities, including both those economics that respond to the logic of the market and competitiveness, and those of higher rank which seek to achieve desirable social goals.

Finally, learning becomes the key to today's society because it is, ultimately, a society willing to learn and to cope with the changes. We can consider it, therefore, a creative and innovative society.

That is why, in a second stage, the CREANOVA research has focused on the detection and analysis of "best practices" that would allow us to identify the factors and conditions that are present in the educational processes that generate creativity. To do so a total of 50 best practices in five countries: the Basque Country (13), Scotland (13), Italy (3), Finland (13) and Estonia (4) were collected, all materialized in very different learning processes but working intentionally the development of the innovative and creative capabilities of the participants.

In a third stage, the research team, taking into account both the above mentioned theoretical analysis and the analysis of the "best practices" and their most relevant characteristics, made an interpretive framework to allow planners and educators to put their attention into four broad categories, that would cover practically all these elements: Need, Freedom, Interaction and Environment.

The idea-category of Need can be understood in terms of survival, creation of problems, resolution of conflicts, motivation (intrinsic and extrinsic), personal interests, social needs, questions with a deep meaning, passion, etc. The idea of Freedom is materialized in the opportunity of self-management, independence, freedom of expression, confidence, not judgement, acceptance of errors, high level of initiative, violation of rules, etc. Interaction can be noticed in expressions such as: interaction between systems, institutions and actors, network, teamwork, communication among peers, communication between different, etc. The Environment is the context in which learning occur: it can be understood as macro environment, physical environment and as a positive climate for the creation.

This framework helps us to make an interpretation, in creative-innovative terms, of the various processes of learning from a common language, which makes it possible for us to reach an agreement on the senses and meanings that these four conceptual categories can acquire, and the conditions and elements that are associated with each of them. In turn, these four concepts become axes to design our intervention, for the sake of further development of creative and innovative capacities.

Once the construction of this interpretative framework has been finished an educational innovation has been developed in the Basque Country in a four stage. The above mentioned categories seem to be useful to facilitate to the teachers and policy makers a better understanding of the educational practices that develop creativity and innovation as part of learning, although they need to be validated with the experiences from the other countries.

THE IMPACT OF INNOVATION (VOUCHERS) IN THE CLASSROOM

Andrew Power, Tim McNichols, John Dempsey, John Montayne, Institute of Art, Design and Technology, Ireland

In 2007 Enterprise Ireland, a government organisation which supports Irish industry, introduced a scheme called innovation vouchers. The aim was to provide small to medium organisations access to the research and development capabilities of Ireland's higher education sector. The scheme has been very successful in achieving this aim with more than 300 such industry/academic engagements occurring since its inception. In addition to the benefit derived by industry and the consequent funds made available to the HE sector, an unexpected outcome was the benefit derived by academic staff due to their exposure to industry. This paper takes as an example the experience of a number of academic staff in the Institute of Art, Design and Technology (IADT) in Dun Laoghaire, Co. Dublin. It examines the learning's achieved by these staff as result of their engagement with industry through the innovation voucher scheme. It then examines how lecturers integrated this learning into their teaching practice. The high rate of knowledge change, due to developments in information technology, demand innovative teaching solutions and the need to remain connected to industry to maintain sustainable and meaningful educational engagements.

SUSTAINABLE LEARNING FOSTERS ENTREPRENEURS? FREE – FOSTERING RETURN TO EMPLOYMENT THROUGH ENTREPRENEURSHIP INNOVATION AND CREATIVITY

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Entrepreneurship a key competence to sustainability

This paper discusses how entrepreneurship can foster a sustainable economy, low unemployment and a population with high level qualifications and competences.

These aspects are positive results of the term entrepreneurship, however the question raised is then how only a fraction of potential entrepreneurs actually are becoming entrepreneurs?

Education as a road to entrepreneurship

The positive attributes associated with entrepreneurship are not only attractive when setting up a business, these competences can be an asset in all kinds of situations and tasks. Often there is talk about the *entrepreneurial spirit* or culture as a competence within itself. It is recognised in various contexts how attractive individuals with these competences are and discussions at both national and European level about how to integrate these competences into the general education system, so as to educate people to become entrepreneurs or at least having the necessary competences. It is believed that if youngsters from an early point in their school education are subjected to acquire entrepreneurial competences that they have more likeness to become entrepreneurs as adults, or simply being better qualified to certain work than their peers having not being taught in entrepreneur subjects.

However, also in adult education training can within entrepreneurship be very useful and contribute to a more fulfilling and resourceful life of individuals that perhaps would not have had the possibility for another kind of life. Accordingly to statistics, there are particular two groups that very often are subjected to low qualifications, unemployment and social exclusion and these being the younger people until 25 years or the more mature age group from after 45 years. It can be argued that providing these two groups with entrepreneurial competences that they will have easier to find employment (especially long-term employment) and reduce the risk of poverty, social exclusion, and low life-quality.

Sustainable entrepreneurship tools

Support to individuals, who would like to become entrepreneurs is indeed necessary, but what is just as important as providing this support is to provide support to the professionals working with these individuals, this is the first step on the way to drive the *entrepreneurial spirit* forwards.

Through the use of a sustainable education tool it is believed that professionals can improve their competences on how to provide support to these individuals that wish to become entrepreneurs.

These competences are collected in an interactive tool available online and developed from the FREE project – *Fostering Return to Employment through Entrepreneurship, Innovation and Creativity*. Everybody can access and use the tool, but the tool is especially targeted towards professionals providing counselling to individuals.

Visit the tool at http://www.spi.pt/free/interactive_tool/ or our website www.spi.pt/free or follow us on Facebook/freeproject.

LOCAL SUPPORT FOR ONLINE LEARNERS WITH POSSIBLE LEARNING DISABILITIES

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The “Learning Room” an adequately supported environment for learning

This paper reports from a research study concerning online distance study for competence development of vocational rehabilitation clients. The students included in the study were adults with health problems participating in a rehabilitation process to re-enter into working life. As a group, the students are characterized by a great variety of difficulties and learning disadvantages. The study examined the results of combining individual online distance learning with support organized by a local vocational rehabilitation enterprise.

Over time there has been some success with blended learning, i.e. online courses combined with local classes, for this target group. However, individual online learning has had less success, mainly because of an experienced higher drop-out rate among these learners. Blended learning has generally not been a good option, as individual needs differ, so that the possibility of getting a sufficient number of students needing the same course at the same time, and place, seldom occurs, and because of their personal social and health situation, the students need to start when they are ready and also proceed at their individual pace.

In the search for solutions to support this group of learners to succeed in online learning a new concept of support was designed – the idea was to combine individual flexible online learning with local support in the ‘learning room’. NKI, as online learning provider, collaborated with local vocational rehabilitation enterprises, which established a room furnished for learning with all necessary facilities including computers, Internet access, individual study areas and areas for social activities and co-operation – the ‘Learning Room’. In addition, there is an educational counsellor available, who supports the students in deciding which online programme that is best suited for each individual. The local counsellor is also responsible for following up and to give advice and support to the students in their learning endeavour. Technical and practical support is supposed to be continuously and easily available. The students in the learning room may study any online programme, start at any time, proceed at their own pace and interact socially, and sometimes academically, with other students studying the same, similar, or different courses. Incidentally, they may have fellow students studying the same programme being ahead, behind or at the same stage of their studies. Specifically, it was considered for these students that bringing structure into their lives by requiring an agreement of meeting physically for learning activities at specified times and days would be very important for their success. It should be noted that no local direct teaching was offered.

The research study included interviews with students, local supervisors/counsellors and representatives from the Norwegian Welfare and Labour Administration, which finances rehabilitation activities, as well as collection and analyses of statistical data on completion rates. The study indicates that online line study with adequate local support may constitute a good solution for this target group of possibly disadvantaged learners.

DISTANCE EDUCATION TECHNOLOGIES AS A SUSTAINABLE AND SUSTAINING TOOL IN VOCATIONAL REHABILITATION OF INCARCERATED INDIVIDUALS

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Persons who have been incarcerated have a difficult time finding legitimate employment in the community. Often, their education and work skills are less than optimal. Traditional job seeking is hampered by lack of references from former employers and lack of job-seeking skills. Application of the model successfully developed with prisoners will be utilized with pre-release and post-release offenders, and displaced workers.

Learning and Achievement to Decrease Dependency through Education and Rehabilitation (LADDER) is a University of Memphis Institute on Disability (UMID)-based program which uses comprehensive assessment tools to assess psychosocial, educational and vocational strengths and needs of incarcerated persons who are in preparation for release from the Shelby County Department of Corrections (SCDS.) Distance learning technology provides a viable and valuable tool to be used in preparation of incarcerated persons for successful transition from jail to work.

Distance education observed in the UMID work supports post-incarceration placement of formerly jailed persons in job placement and retention of employment in the competitive job market of greater Memphis for participants. LADDER staff provides each trainee with a systematic evaluation of vocational needs. An individually created placement plan with a target goal and placement for competitive work upon release is created by LADDER staff who works with SCDC to develop relationships with community-based entities such as Goodwill Industries, Meritan, Salvation Army, etc. to create job opportunities for post-release participants. They also use available Workforce Investment Network (WIN) governmental resources in cooperation with WIN staff, to create job opportunities for these trainees. Participants are followed up with at 30, 60, & 90 days post-release. Support is provided during follow-up visits to facilitate job retention. Trainees learn job evaluation, job seeking skills and job retention techniques. The activities of the LADDER project are documented to create a model Memphis program that can be disseminated to other sites. Unique features of LADDER training are the systematic evaluation, individualized program, and the follow-up and follow-through activities which can rarely be found in programs for persons with a history of incarceration.

The LADDER project will bring distance education to incarcerated persons in Shelby County under funding from WIN to help prepare them for entry into the world of work and future training. For example, in staff discussions with Tennessee Technological Institute (TTI), one of the most prestigious training academies in the state, they were delighted to consider covering all their remedial classes using distance methods into the Division of Corrections, so that inmates could immediately participate in their training classes, upon release. This would allow for preplanning for upcoming classes, for increase of revenue for TTI, and for better use of their resources in preparing the inmates to enter training and the workforce. The source of revenue would be the state resources for which the inmates already are eligible. The chance to decrease recidivism and other humanitarian pursuits also was attractive to TTI.

The distance training programs would thrive, would be sustained by state funding and would benefit not only the prisoners who want to reintegrate into society, but would benefit society by preventing subsequent incarcerations, if the inmates find and sustain work, through pre-training and training. The reality of using distance methods to train and prepare inmates close to their release date, through programs such as the LADDER, is at hand and will only grow, as programs such as LADDER grow in the USA, Europe and globally.

FOSTERING SUSTAINABILITY OF SOCIETY AND WORK OF DISADVANTAGED WOMEN BY USING E-LEARNING

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Sustainability, inclusion and diversity of works

Sustainability in the context of e-learning refers to the development of a digital learning process which takes into account not only the natural environment but also the quality of life of the current and following generations. The involvement of the target groups which are the most excluded in the society is an opportunity for e-learning to contribute to a better balance and a more sustainable society.



Figure 1

Flora is a Belgian network active in the field of social and professional inclusion of disadvantaged women (and men). Different projects of action-research with the target group have resulted in a fundamental reflection on the mechanisms of exclusion as well as on a more active approach to creating a more sustainable society. This implies that everyone has capacities to contribute to society, and that there is a balance between different types of work the society needs. In this context, 'work' refers to all types of activities that are essential for the development of a person, a group or society as a whole. There should be no differences between men or women, or between members of different social groups, since they all contribute to the reproduction of society. These types of work can be classified as **productive work** (ensure material needs), **social work** (develop social networks and citizenship), **care work** (take care of the different generations) and **self work** (encourage empowerment, personal well-being, development of personal talents).

In society today, productive work has become the dominant and is the most valued type of work, which creates an imbalance at the level of the other types of work. So balancing and integrating these types of work is itself recognised as a fifth type of work and it is the precondition for a more sustainable society. The 5 Types of Work Integration (5-TWIN), without any hierarchy of one type of work over the other, is one of the keys to a more sustainable society.

E-learning as an opportunity and a challenge to enhance sustainability

E-learning can be an opportunity for disadvantaged women to develop their self-image and skills in private that may later be demonstrated publicly through the many tools offered by ICT. In some forms of delivery, e-learning can also facilitate greater balance between life-long learning and others aspects of women's life, since it allows flexibility in the choice of learning times.

However, e-learning is often based on an individual logic which can have a consequence of strengthening the already poor self-image of the learner if she or he runs into too many difficulties. A possible solution to develop the self-confidence and self-esteem of disadvantaged women is to create a group project of their own choice, with a relevancy to the reality of the disadvantaged women involved in the project. This embodies an inclusive and participatory

E-Learning for Social Integration

approach to meet needs and expectations of the target group, but also allows for the target group to develop self-confidence, group cohesion and citizenship (belonging to the society). This will enhance the sustainability of knowledge, skills and other specific learning outcomes acquired during the training period. Thus, this methodology offers a balance between individual aims (productive and self work) and collective goals (care and social work), and so results in empowerment and social inclusion.

Networking on different levels: the path to a more sustainable e-learning

Working together in a network has a lot of advantages, not only for the target group but also for social workers and organisations. The only problem is that it requires time. Providing a network as a space for reflection and exchange of good practices among social workers will have a positive impact on the quality of their work as well as their motivation.

Social networking also has a positive influence on the accessibility of training for disadvantaged women: by becoming better acquainted with the sector they work in, the organisations and social workers can learn to function within an associative and cooperative, rather than competitive logic. They can develop local projects in a network and/or to inform disadvantaged women (and men) about other organisations and ICT-related initiatives in their neighbourhood, vicinity or on the Internet.

MOBILE LEARNING – AN ASSET FOR SUSTAINABLE DEVELOPMENT IN DEVELOPING COUNTRIES?

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Information and Communication Technology (ICT) is regarded as a powerful tool for development. Nevertheless, most ICTs face many problems in developing countries, in part due to the lack of adequate infrastructures. But despite those problems, there is one technology that is widely used in developing countries: mobile phones.

In the Information Society Report 2010 published by the *International Telecommunication Union* (ITU), the developing countries are experiencing an important increase on the use of mobile phones. The ITU states that: *“It is a technology that has permeated more widely than any other into new areas, and we must examine how we can utilise this technology going forward, to help narrow the digital divide”*.

The proliferation of mobile phones in developing countries is due to several factors. One of the most important ones is the relatively low cost of the mobile terminal. In most of the world countries, it is possible to find a mobile phone for about 40\$. Besides, there is a second hand market that allows people from developing countries to buy a mobile phone for a low price. These second hand market starts in the developed countries, where people tend to change their mobile phone regularly. These terminals that are no longer used in the developed countries, are sold in the developed countries for a lower price.

Mobile phones are personal devices that serve many purposes for its owner: communications, photo and video camera or music. In developing countries they also have other uses, such as lanterns, since public illumination coverage is very low and many homes do not have electric power supply. For many people in developing countries, mobile phones are their only computing device and they are have become portable networked computers.

In developing countries, there is high demand of information related to health, agriculture and education. SMS-based applications have covered this gap in the last years, creating a huge market for SMS. So SMS-based applications and in general, mobile technologies are providing information services to a large percentage of population. When mobile technologies offer open and general-purpose systems, the people have figured out ways to use the technologies to satisfy the needs they need the most. People in developing countries are innovators because they have created unique ways to use ICT. For example, *sente* is an informal way to send money to someone using a local Kiosk operator. This paper presents some common and creative uses (such as *sente*) of mobile phones in developing countries.

Since many times mobile phones are the only computing device for local people and there is also a high demand of information related to education, mobile learning (m-learning) applications are proliferating in developing countries. Mobile learning could be used as a tool to narrow the digital divide and help development. This paper presents a review of some mobile learning projects for development.

Although mobile phones have rapidly spread in developing countries, the availability and accessibility of this technology does not assure that it will succeed in helping develop poor countries. In fact, mobile learning faces many challenges in developing countries. One of the most important challenges of m-learning is to involve local people from developing countries in the process of producing ICT information and contents. They must not become recipients (or consumers) of information as a form of cultural colonization from the developed countries, but become producers of ICT. They must be able to participate in producing information by themselves as well as creating a new way of using ICT. To achieve this goal, web 2.0 tools can be used as a platform to help local people from developing countries to become producers of ICT.

E-LEARNING STRATEGIES FOR DEVELOPING SOCIETIES: LESSONS LEARNED FROM ANTHROPOLOGY

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In recent years, and still going on at the present, in most countries of the world people experience a powerful improvement and fast dissemination of information and communication technology infrastructure. Today, the inhabitants of nearly all regions of all countries can participate in the World Wide Web by using networks, computers and mobile devices.

At the same time, enormous efforts in academic and non-academic educational institutions are going on to provide educational content online, many of them freely available as Open Educational Resources. Due to the fact that in many less developed regions governments are struggling to build up educational capacities for their countries in order to promote economic growth and development, it is obvious to conclude that online educational resources could play a catalytic role in the evolution of the educational system of a country.

But did the integration of online learning resources succeed? In this article, I am suggesting that e-learning strategists involved in technological innovation programs in education could generate better results when taking local cultural factors into account.

The cultural change in teaching and learning triggered by digital media has been discussed in Media Pedagogy. A reflection about culture in Media Pedagogy leads to questions like: Why is the teaching and learning culture changing or not changing? What characterizes the university teaching and learning culture? How do the roles of teachers and students change, the hierarchies in the learning contexts, the learning experiences when learning in teams, in self-directed learning, in Web 2.0 using, in problem based learning?

These types of questions arise and answers are found in analyzing learning processes and social interaction within the classroom. So, the culture discussion in Media Pedagogy exists, but the culture area under observation remains narrowly framed: It is the classroom – be it a real, a blended or a virtual classroom – and research findings about cultural factors are very much focussed to the pedagogical and didactical aspects. But what about the cultural forces influencing educational innovation outside the classrooms?

The point of view of Anthropology opens a perspective to the fact that in education, not solely teaching and learning, but also, e.g., the value attributed to education, the attitude towards education, the selection of people being educated, the selection of learning programs or content, the teaching methods etc. are socially agreed-upon standards. Such standards vary considerably in the different cultures and they influence the educational practice and the development of educational systems.

Social Anthropology and Ethnology offer theories and models about cultural change and the impact of socio-cultural factors for the development of societies. So, the idea of a transfer of anthropological concepts from general development theory to the field of educational development and especially e-learning strategy development might be fruitful.

E-learning has the potential to provide added values to societies which had not been successfully addressed by educational systems before. Therefore, this contribution advocates a “cultural turn” in the discussion of e-learning strategies for educational politics in developing societies.

STRENGTHENING UNIVERSITY AND SCHOOL PARTNERSHIPS TO IMPROVE AND SUSTAIN THE INTEGRATION OF TECHNOLOGY IN SCHOOLS: THREE EUROPEAN CASE STUDIES

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Implementing technology in school has undergone several metamorphoses to achieve desired aims of increased student motivation and enhance the value of learning. The effective utilisation of technology assisted learning engages many professionals in the educational landscape as the discussion continues on which technology to use and how best to use that technology. Part of the dialog involves choosing the appropriate learning context, developing an effective training and mentoring platform and selecting the technology suitable for the purpose. The building of such learning development structures requires a networking solution that transcends the resources and capabilities of one organisation.

Developing an effective learning framework for schools requires a cohesive partnership between education authorities, training professionals, universities and schools. To be effective, the framework requires a structure where instructors are supported by an intuitive learning platform and materials and that participants are empowered to trial new methods and technologies as well as developing their own learning material. However, there is more to the implementation of technology than an effective training framework as the incentive to use these technologies should be born out of motivation to further learning development that is supported by research and innovation. Most education authorities, whilst pursuing some research, do not have the capacity to pursue parallel or divergent avenues of research whereas it is a poignant element of higher education. The possibility to utilise the different strengths and opportunities of each sector into a partnership is explored in this paper.

The cooperation between a university, FH Joanneum, Austrian schools and the Austrian Federal Ministry of Education to develop, integrate and sustain new technologies in schools is explored. The cooperation is developed under the auspices of European Union education projects, such as Comenius or the Life Long Learning Programme, and involves university and ministry personnel and most importantly students and teachers from schools. The university provides advice and research on cutting edge technology for educational purposes and in some cases also provides training for either mentors or teachers. The ministry is the nexus between the institutions, managing the project, providing financial resources as well as the mentoring framework through which the teachers are trained and assisted to implement the technology within a learning context. The schools become the laboratory where the use of technology within a learning construct is tested and evaluated for the learning and motivational effects on the students and the methodological change for the teacher.

The success of this collaboration is partly attributed to using the resources of the university to develop some of the cutting edge technologies for schools and then partnering with the education ministry to use the education network to trial the technologies and test the effectiveness of the technology itself as well as the effect on learning. The close collaboration of university personnel, ministry managers and teachers and students develops a network that can provide support, evaluation and sustainability for the current project as well as future initiatives. The partnership also provides a window for each institution where university students have the opportunity to test hardware and theory and enables teachers to have continuing professional development and mentorship.

There are a number of benefits possible by encouraging such partnerships amongst educational institutions. The focus of the projects highlighted in this paper addresses science education and energising the resources of both organisations allows solutions to be planned in the interests of lifelong learning as well as establishing a mechanism to address future educational foci. Such collaborations also allow universities to encourage and motivate current school students to consider future academic scholarship. Promoting such partnerships enables resources to be used effectively, encourages the collaboration of personnel with the appropriate expertise across the educational sector, enables the motivating use of technology and invigorates the learning platform.

eFESTO PROJECT: A *DEAFINITE* STEP TOWARDS E-INCLUSION

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In a technologically advanced society as the one we live in, computer science plays a crucial role. Accessibility to modern computer technologies increasingly represents a possibility to know, learn and work. In such a context, e-learning or distance learning appears as a new way for people in general to enhance their competences and proves to be particularly useful for people with disabilities. The strong link between technology and education can enhance the inclusion – and, along with it, the e.inclusion – of deaf and hard-of-hearing people by improving and/or devising new teaching modes and methods suited to the teaching of competences and skills necessary to access the modern technological society. To help bridge the gap between the lowly qualified professional background and the occupability of disabled people, the European Commission has recently published the “European Disability Strategy 2010-2020”. Recent surveys and specific studies had pointed out both the low occupability and the poor digital competences of European disabled people, which strongly depend on their low education levels and the inadequate vocational qualifications attained.

The core objective of the eFESTO project, funded by the “Lifelong Learning Programme – Leonardo Da Vinci – Transfer of Innovation” in 2009, is to help deaf learners in particular to bridge this gap. Indeed it aims at devising an innovative learning environment for deaf learners useful to acquire more skills in managing and using electrical and electronic equipment in different application fields, such as biomedical, telecommunications, industrial and sustainable environment areas. The system will also deliver specific English lessons, considering the importance of a foreign language competence to access the labour market. The eFESTO project derives from the transfer of the innovative technological results of two previous Italian national projects, led by the University of Sannio: the La.Di.Re. and the PSELDA projects. Both are based on a distributed architecture which uses a centralized server hosting a Learning Management System (LMS). The LMS used in eFESTO is “Moodle”, which being a modular and open source platform, gives the possibility to change the structure according to specific needs. Indeed, thanks to its modularity and flexibility, several modules have been modified to manage the remote experiments, while a new module has been developed ex-novo to handle experimental tests.

The didactic contents proposed in the eFESTO project are related to scientific subjects, English and laboratory activities. The former (i.e. the activities related to scientific subjects and English) are stored in a database accessed by the LMS and they will be organized into learning objects following the standard format for e-learning content in order to grant interoperability and reusability in different LMSs. The laboratory activities, instead, allow deaf and hard-of-hearing students and workers to access a remote and geographically distributed didactic laboratory, through a Web-based multi-tier distributed architecture centred on the LMS, which can be considered as the core component of the overall system. The module designed to manage the remote laboratory is based on a scheduling system, managing the catalogue of available electrical apparatuses, and re-directing the user’s requests to the involved real laboratory, chosen among the partner laboratories in which the required apparatus is currently available. Moreover, it enables the user to control the electrical apparatus through the LabVIEW software environment without requiring the client to install it. Regarding the contents centred on scientific subjects and English, a new didactic methodology has been devised tailored to their end-users’ specific learning needs and basically based on the combination of sign language and writing. Each subject content will be translated in the national language of each partner country and will be accompanied also by an optional video translation in international sign language. The aim of this facility is to give the deaf an occasion to know the development of the international signs, originating from reference to signs in BSL (British Sign Language) and ASL (American Sign Language). For each subject a set of reinforcement activities will also be offered as a support to the comprehension of the topics explained. The national sign language translation will be synchronized with the written text, which will be highlighted by changing its colour as the video is being played. Synchronization is made on the basis of single sentences and not of single words, because of the well-known reasons of structural, lexical and grammar differences between sign and vocal languages. As to the teaching of scientific subjects, users will benefit from a glossary of scientific terms too, aiming at giving the deaf an explanation, in both spoken and signed national languages, of the terms most frequently used in the lectures. Regarding the lab activities, the main subject content consists of three different and sequential stages. They include: the text of the subject content supporting the understanding of the lab exercises and translated in English to favour the sharing of information; the video-tutorial recorded by the teacher in the lab (accompanied by synchronized subtitles), illustrating the use of the equipment and the experiment modalities; the experiments themselves to be done remotely.

DEVELOPING A CONSTRUCTIVIST CLASSROOM WITH TECHNOLOGY: TOWARDS AN UNDERSTANDING OF THE PROCESS IN BULGARIA

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The current paper aims to introduce a nationwide ongoing mixed-method design study that is being conducted by the team of the Integral University Center for E-learning affiliated to Sofia University, Bulgaria. The total of 243 teachers from 81 schools in Bulgaria participated in a survey which main goal was to reveal how Bulgarian school teachers across subjects and school levels perceive the place of educational technologies in their practice and implement constructivist approaches through educational technologies.

The theoretical framework of the study is that of teacher knowledge proposed by Punya Mishra and Matthew Koehler; within this model, the educational processes are interpreted from a constructivist perspective. This guiding model reflects the growing inclusion of technology into the learning process; it emphasizes the direct connection between the two major types of teachers' knowledge: pedagogical and content with added third dimension – that of technology.

The presented study has been conducted in two stages: in the first stage which is already completed, a quantitative method of investigation was used, while the second stage (on-going) is of a qualitative design. The goal of the first stage of the study was obtaining data that present the overall trends in teachers' perceptions of technology, their competencies in technology integration and use of software which could support constructivist learning environments. These results provide valuable information to the faculty of teacher-trainer programs as well as to the national education stakeholders and decision makers. In addition, the results obtained during this first stage of the study inform the design process of the second qualitative stage, providing opportunities for focused investigation. During the second stage the aim was to collect rich data in an informed manner in order to gain more insights about the studied processes and address the specifics of these processes in more depth.

In the second stage of the study, a qualitative method of inquiry with a case study design is applied. Thirteen case studies were initiated in selected schools located in 6 different towns of Bulgaria. Each school is treated as a separate case study. Two different approaches to data collection were used in order to build each case study: semi-structured interviews with principals, teachers, and students and observations of the learning process in selected classes. The aim of this stage is to examine in more depth the trends identified through the analysis of the quantitative data in Stage 1 of the study. At the current moment, the qualitative data are being analyzed by the research team.

The researchers believe that the outcomes of the study will guide educators and policy makers when setting specific priorities and developing strategies for effective technology integration with consideration of the contemporary trends in education. These outcomes will also support the design and implementation of effective on-going teacher training programs for technology integration. Finally, the researchers expect that the outcomes of the study will inform the process of policy making that would assure equal and appropriate access to technology in educational settings in Bulgaria.

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SUSTAINABILITY – A KEY PRINCIPLE OF THE BAVARIAN VIRTUAL UNIVERSITY

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Introduction

The Bavarian Virtual University (BVU) was set up in May 2000. It supports its 31 member universities in providing courses for high quality education for a growing numbers of students. With the support of the BVU, students can earn credit points in individual courses, but they obtain their degrees at their home universities, as the BVU does not offer complete degree programmes. The aim of the BVU is to complement the programmes of the traditional universities, not to replace them.

The Principles of BVU

In order to function successfully the BVU has to follow certain principles. Sustainability has always played a major role as key element of the principles of BVU. The most important of these principles are:

- “Blended learning” at the macro level of the course of study (not of the single course, lecture or seminar): The courses of BVU function completely online, thus facilitating their import and export between the member universities and allowing a maximum of flexibility to the students.
- Intensive tutorial guidance for the students: Apart from funding the development of courses, the BVU also finances online tutors to guarantee the sustained operation and use of the courses.
- A programme policy oriented strictly towards the needs and the demand of the member universities: The BVU finances a new course only if at least two member universities declare their demand for the course as well as their decision to replace face-to-face teaching by that course. Of course, all other member universities are equally entitled to use the course.
- An elaborate quality management is applied to course development and course operation: It involves peer and student evaluation, training programmes for new course developers and online tutors and financial support for the updating of courses.

Results

In 2007, the BVU was identified as one of Europe’s “mega-providers of higher education online” by the European Union’s MegaTrends project (http://nettskolen.nki.no/in_english/megatrends/). This study was based on data from 2005, when the BVU had about 20,000 course enrolments. In the academic year 2010/11 the BVU expects approximately 80,000 course enrolments by more than 30,000 students, and 100,000 course enrolments by 40,000 students are expected for the academic year 2013/14. Approximately 55% of the students who enrolled in a course take part in the final examination. 57.5% of the total enrolment is in courses offered by a university other than the student’s home university. This shows that the “import” and “export” of teaching across university borders have become a widespread reality.

Conclusions

For its successful further development the BVU will have to serve the needs of three target groups: students, teachers and universities. By serving the needs of these target groups, the BVU serves the needs of society and state, which in turn provide the necessary funding.

THE COACT FRAMEWORK FOR ENABLING HIGHER ORDER LEARNING IN THE DESIGN OF LEARNING MATERIALS FOR THE ONLINE LEARNING ENVIRONMENT

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The COACT model

Current approaches to online teaching and learning employed by Hibernia College include a variety of pedagogical approaches, such as interactive online lectures and tutorials, and use of audio, video, forums, blogs and social networking tools. However, while courses developed so far have been extremely successful, higher-order learning has not been inherent in actual content design up to this point. Typically, course authors tend to revert to the lecture-based format in which students are quite passive. A significant focus for the College in creating engaging learning materials has been to re-engineer this lecture-based format to achieve higher-order learning by including as much student interaction and reflection as possible, alongside the delivery of information from the lecturer.

The College has therefore developed a framework for design and creation of online teaching and learning materials, based around a five stage process, CONCEPT–OVERVIEW–ACTIVE DISCOVERY–CRITIQUE–THINK (COACT), which reflects a progression from lower-order towards higher-order learning. This model has been developed in order to improve the overall student learning experience and create sustainable approaches to teaching and learning by:

- Creating a framework for course design that, if followed, guarantees higher-order learning takes place and learning objectives are explicitly addressed
- Ensuring the creation of truly engaging e-learning content
- Drawing on the full range of pedagogic tools available in order to create a richer learning experience
- Encouraging a move away from a dependence on tutor-led learning in order to create independent learners
- Enabling learners to acquire life-long learning skills by equipping them for the knowledge-based society

Higher-order and life-long learning are particularly important in the context of the College's suite of courses and representative student demographic, which is comprised of mature professionals and career-changers. The approach to course design requires instructors and learners to interact more fully with the range of resources available within the online environment, and also better equips learners to deal with the constantly evolving and changing information that is a reality of our knowledge-based society. While the model may be more challenging for instructors and students to work with, requiring greater levels of engagement and motivation, it is suggested that the framework will allow learners to learn what is relevant to them, in a real-world context, creating a learning experience that is highly personalised and more likely to be retained.

E-DIDACT – ENGINEERING PEDAGOGY AT UNIVERSITIES IN SAXONY A RESEARCH AND FURTHER EDUCATION PROJECT OF TU DRESDEN AND THE UNIVERSITY OF APPLIED SCIENCES ZITTAU/GÖRLITZ

Steffen Kersten, Thomas Köhler, Hartmut Simmert, Technical University of Dresden, Germany

Outline

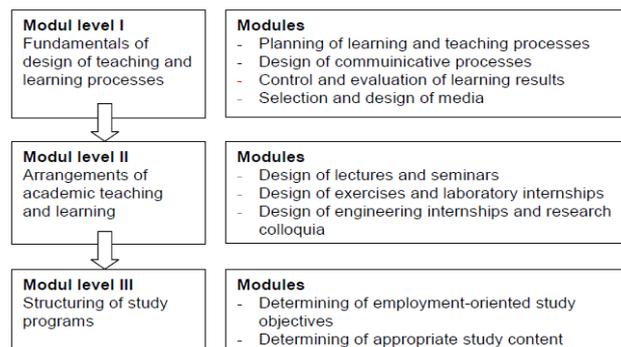
This article outlines an approach to a common project of the Technical University of Dresden and the University of Applied Sciences Zittau/Görlitz for the development, implementation and testing of a postgraduate distance learning further education course with integrated e-learning components aiming at the development of competences in the field of arranging teaching and learning processes in academic university education. The goals of this engineering-pedagogical qualification are derived from an empirical demand analysis. The modular structure of the postgraduate distance learning course is based on the structure of the studies of the International Society of Engineering Pedagogy to become a so-called Euro-Engineer-Pedagogue. The project has started on with support of the Saxonian State Ministry of Science and the European Social Funds.

Understanding of “Engineering Pedagogy”

Engineering pedagogy has a very long tradition at Technical University of Dresden. The discussion on technical education and technical teacher training at TU Dresden (at that time Royal Technical Educational Institute in Dresden) can be retraced to 1851. With the establishment of the Institute for Engineering Pedagogy by Hans Lohmann in November 1951, teaching and research in the field of engineering education could be institutionalized. His research focused on the relationship of technology and technical teaching, laying foundations for an understanding of engineering pedagogy which is the targeted on designing technical and technologically-specific teaching and learning.

The New Approach: The Engineering Pedagogy Project “E-DIDACT”

The aim of the project is the development, implementation and testing of a course of postgraduate distance study/further training with integrated e-Learning, to develop abilities for designing teaching and learning processes in academic engineering education. The development of postgraduate distance-learning programs is based on the modular structure of the curriculum “Euro-Engineering Educators/Teachers” of the International Society for Engineering Education. The needs analysis which has already been carried out led to the following module structure of the further training course in engineering pedagogy:



The different module levels are systematically based on each other. All modules are aimed at the development of scientifically-based, application-oriented action rules for the planning, execution and analysis of academic teaching and learning in engineering sciences. The didactic concept of the training program provides teaching-learning arrangements in coordinated phases of classroom study, self-directed learning as well as individual coaching. In particular, the phases of self-directed learning and individual coaching are supported by internet-based learning scenarios. The selection of the tools of e-learning is determined exclusively by its didactic purpose and functions.

HOW TEACHERS CAN USE GAMING IN THE CLASSROOM: THE ENERCITIES CASE

Derk de Geus, Paladin Studios, The Netherlands, John Latham, Lancaster and Morecambe College, United Kingdom, Eric Luijten, ROC Nijmegen, Erik Knol, Qeam BV, The Netherlands

Support needed for serious games in the classroom

Games are an integral to young people's lives and there is an acceptance amongst teachers that (serious) games have educational potential. Educational or serious games are often regarded as effective learning tools due to their engaging character and are used in various contexts. Serious games are more strongly focused on the fun and enjoyment of the gaming experience while the learning elements are not fully obvious or centrally positioned in the game. The National Foundation for Educational Research (2009, UK) found that in a survey of 1600 teachers in 2009, 35% said they had used games and 60% would be willing to do so in the future. Nevertheless, they were infrequently used within the educational system. One aspect that was identified during the EnerCities project (see project explanation below) was the reluctance/inability of (VET) teachers to use a serious computer game as a teaching mechanism. Subsequent research has shown that this is a shared problem across Europe. Good practice has been developed within the EnerCities partnership in demonstrating ways in which this can be overcome. Ulicsak & Wright (2010) state "If games are to be mainstream classroom tools, teachers need support to: 1. Identify what games are available that meet their learning objectives; 2. How they can best be integrated into lessons given the context; 3. How learning can be assessed".

Workshop: How teachers can use gaming in the classroom based on the EnerCities case

The game EnerCities was designed to encourage learning about energy sustainability and conservation. It runs online (www.EnerCities.eu) and on Facebook (<http://apps.facebook.com/energicities>) and is available in six EU languages for the moment (Dutch, English, German, Greek, Slovenian, and Spanish). The game and related educational materials are freely available for schools and individuals across Europe. This workshop has the purpose to inform the audience about the lessons-learned regarding the usage of EnerCities on the different schools across Europe. Additionally, a discussion with the audience what elements should be covered to make the adoption of a serious game like EnerCities on school by teachers a success. Attractive aspect of this workshop is that we can use the EnerCities case as reference / example. The workshop will have the following structure:

Part 1: What are games and serious games? – During this section, a professional game developer will elaborate on the basic principles of games and serious games. It will discuss the elements for attractive (serious) games from multiple perspectives (e.g. game play; richness, complexity & educational aspects; navigation). The workshop model gives a good opportunity to show (on the large screen) examples of attractive games (with educational potentials and/or certain effects on awareness and attitudes of young people) while elaborating on them together with the audience.

Part 2: Lessons-learned regarding the adoption of EnerCities from teachers' perspective – During this section, teachers (being members of the EnerCities partnership) will elaborate on the good practices and lessons-learned regarding the adoption of EnerCities on schools from teachers' perspective. As being teachers and involved in the dissemination of EnerCities in several European countries, their findings and views give valuable input how to package serious games for schools / teachers.

Part 3: Shared conclusions regarding (serious) games adoption in schools – In this last section, we prefer to come up with a working modus to invite visitors of the workshop (audience) to support the creation of shared conclusions regarding the (serious) games adoption in schools. With this approach, we try to collect and categorize received insights from the audience. Next, we conclude the workshop with a preliminary overview of conclusions based on input from the visitors how to support teachers to using gaming in the classroom.

BUILDING A LEADERSHIP CULTURE: A WORKSHOP FOR EMERGING LEADERS IN ONLINE LEARNING

Bruce Chaloux, Southern Region Education Board, Lawrence C. Ragan, Penn State World Campus, United States of America, Brian Mulligan, Sligo Institute of Technology, Ireland

Workshop Rationale and Structure

The worldwide growth of online learning has created significant opportunities for higher education institutions globally, bringing many new institutions into the distance education community and transforming the role of distance education in other institutions. We are now well into the second decade of e-learning. Many of the pioneering e-learning leaders in our institutions are nearing retirement or moving on to broader leadership roles. To ensure effective succession planning, we need at this time to develop the next generation of leaders, preparing them as change agents and managers in the field.

The Sloan Consortium and the Penn State World Campus offer at the 2011 EDEN conference a workshop focused on emerging leaders in e-learning programs. This workshop will feature senior U.S. and European leaders in the field, using a tested model of working with professionals on leadership issues areas related to unit operations, institutional policy, and personal leadership style. "Building a Leadership Culture" is an outgrowth of the Institute for Emerging Leaders in Online Learning (IELOL), a collaboration between the Sloan Consortium and the Penn State World Campus in the United States. Since 2009, the Institute has brought together an international community of more than 60 educators designated by their institution as emerging leaders who, along with senior leaders from the Sloan Consortium, have worked to create change leaders for the future. This effort built on the success of the Administrative Leadership Institute, a workshop held for several years by the two organizations as part of the annual Sloan Consortium Worldwide Conference.

The workshop is modelled after those successful programs and will use the Sloan Consortium's five "pillars of quality" to illustrate the different operational and policy dimensions involved in building a leadership culture in a university-based e-learning operation. These quality pillars embody the ideals of online education in a quick, holistic view of continuous quality improvement and provide a helpful framework for the challenges of leadership. The pillars include:

1. **Access** – All learners who wish to learn online have the opportunity and can achieve success.
2. **Learning Effectiveness** – The provider demonstrates that online learning outcomes meet or exceed institutional, industry, and/or community standards.
3. **Student Satisfaction** – Students are successful in learning online and are typically pleased with their experiences.
4. **Faculty Satisfaction** – Faculty achieve success with teaching online, citing appreciation and happiness.
5. **Scale (Cost Effectiveness and Commitment)** – Institutions continuously improve services while reducing cost to achieve capacity enrollment.

Around this framework, three strategic leadership areas will be addressed:

- **Operational Leadership** – This section of the workshop will identify leadership issues, challenges and strategies in each of the five quality pillars.
- **Policy Leadership** – This section of the workshop will focus on leadership strategies needed to address both institutional and external policy issues related to creating a transformative innovation in the mainstream of a higher education institution. In many institutions, e-learning began as an innovation that operated outside the institutional mainstream. Today, e-learning is becoming recognized as a transformative innovation that will help institutions adapt to changing societal and individual learner needs. Increasingly, emerging leaders need to work within the mainstream to achieve sustainable success.
- **Personal Leadership Style** – This section of the workshop will explore several dimensions of personal leadership style needed to create change in this kind of institutional culture. Many leadership development programs grow out of corporate management experience. However, higher education is a unique social institution, regardless of how it is funded. Leading change in this unique environment requires personal and professional skills that are better suited to a large and often decentralized community.

DISTANCE LEARNING IN A WEB 2.0 WORLD

Steve Wheeler, University of Plymouth, United Kingdom

Introduction

The world of higher education is changing. It needs to, because societal and cultural changes demand it and adverse economic climates dictate it. Universities need to innovate, or suffer the consequences. Change also comes from the introduction of new technologies and many of these changes can be positive. Universities are becoming increasingly dual mode in that they now have a virtual presence as well as physical boundedness. Development of online learning, e-learning and virtual learning environments (VLEs) has become a key component in just about every institute's business plan within the developing nations of the world.

Alongside these developments, students are harnessing the power of Web 2.0 – the social networks, wiki, blog and podcast tools, as well as other discrete services such as RSS feeds, social bookmarking and dynamic tagging to search, categorise, store and share content. The world of higher education is changing to such an extent that much of the former on campus activities can now be transferred seamlessly to virtual contexts, and for the first time, all students can study in a truly any time, any place context. This usually means a blended approach, where some of their time students will spend in live lectures and seminars on campus, but increasingly, many traditional campus based students are studying for a significant percentage of their time away from campus. This raises questions about contact time, assessment, quality assurance, staff development and skills, access to technology, online discussion, shifting pedagogies and changing priorities.

Workshop Content

In this workshop we will trace some of the history of learning technology in distance education as 'innovation', and highlight some of the milestones in the development of what we now refer to as 'Web 2.0' or 'social media'. We will explore some examples and case studies of student use of social media in for learning in higher education, and will learn how teaching is being transformed, and learners inspired through the creative affordances of these tools and services. We will discuss concepts such as user generated content, the wisdom of crowds, mobile learning, 'folksonomies' and collaborative social filtering as important components of learning in a digital age, whether it is campus based, or at a distance.

The workshop will showcase some of the ways students are learning in new and innovative ways in the classroom and across distance, collaborating in new and inspirational settings, as they develop new and transferrable skills for lifelong learning in a digital economy. We will also discuss some of the issues of concern. For example, how can we reliably assess new forms of learning, and what do we do about increased incidences of plagiarism and academic cheating? How do we address some of the digital divides that are emerging? How can teachers adapt and innovate to meet the demands of a new generation of tech-savvy learners? Can we limit potential marginalisation and ensure the inclusion of disenfranchised students? And how do we ensure the reliability of Internet sources?

Aims of the Workshop

During the workshop delegates will explore a range of social web tools and will gain an appreciation of how to use them within authentic teaching and learning contexts, and will differentiate between their use in face to face and at a distance contexts. In a practical session, ice breaker games, problem solving, discussion and hands-on skill development will be given equal weight so that all delegates have a personalised learning experience which relates directly to their own institutional context. We will create a live group blog to share the experience with those who for whatever reason, may not be able to attend the session.

EFFECTIVE SELF-EVALUATION OF TECHNOLOGY ENHANCED LEARNING A SEVAQ+ EXPERT WORKSHOP

*Deborah Arnold, Vidéoscop-Université Nancy 2, France, Ulf-Daniel Ehlers, Cornelia Helmstedt,
University of Duisburg-Essen, Germany*

Introduction

SEVAQ+ is a European-wide initiative for the Self-evaluation of quality in technology-enhanced learning, based on an innovative combination of the Kirkpatrick evaluation model for learning and the EFQM excellence model designed for all those implementing eLearning and ICT in Higher Education or Vocational Education and Training. The initiative currently involves more than 3000 teachers, trainers and learners in a new method of self-evaluation for technology enhanced learning. This methodology enables a 360° analysis of feedback from the major stakeholders involved in technology-enhanced learning systems to pinpoint areas for improvement, track progress from one semester or year to the next and benchmark teaching and training against other institutions.

SEVAQ+ is now involving European experts in a large scale Delphi survey on self-evaluation, organisational learning and innovation. The expert group is consulted in several rounds in order to gain understanding on how tools and approaches such as SEVAQ+ can be made more useful to support organisational learning processes and lead to innovation. This workshop at the EDEN 2011 Annual Conference in Dublin will bring together European experts in the field of self-evaluation for technology enhanced learning and will present the European Delphi results to the group. In interactive discussion rounds, participants will take part in writing up an agenda and roadmap on how self-evaluation can contribute to organisational growth, continuous improvement and innovation in educational organisations.

Aim of the workshop

This workshop will be part of the SEVAQ+ project activities aimed at validating the SEVAQ quality approach and tool. The results of the prior online Delphi will be presented, reflected on and validated by experts from the field to build consensus on the SEVAQ+ approach and tool for self-evaluation of quality in technology-enhanced learning. These results will serve as input to the white paper which formulates policy recommendations based on the experience of the project. It will be presented officially to EU representatives and invited decision makers at the end of the project during the autumn of 2011.

By participating in this workshop, conference delegates will have the chance to contribute to the European-wide expert validation of SEVAQ+ and to join the quality in technology-enhanced learning community which is growing around this field of interest. Priority access to updated, extended versions of the SEVAQ+ tool and the opportunity to participate in future SEVAQ+ events and publications are other added benefits.

VIRQUAL AND THE NEW ECOSYSTEM OF LEARNING IN EUROPE: FROM E-COMPETENCES TO E-CREDITS

António Teixeira, Branca Miranda, Universidade Aberta, Portugal, Gottfried S. Csanyi, Vienna University of Technology, Austria, Ana Dias, TecMinho – University-Enterprise Association for Development, Portugal, Jüri Lössenko, Estonian Information Technology Foundation, Estonia, Rita Falcão, University of Porto, Portugal

The creation of the European Higher Education Area established mobility, transparency and competitiveness as key notions for all educational systems across the EU. With the implementation of the so-called Bologna Process qualifications could be recognized across Europe, thus paving the way for the enhancement of the quality of curricula in the EU.

VIRQUAL (Network for integrating Virtual Mobility and European Qualification Framework in HE and CE Institutions) is a project designed in the form of a network that precisely proposes to help educational and training institutions to achieve Virtual Mobility and to guarantee the implementation of European-valid qualifications through e-learning. It aims at finding specific obstacles in institutions and proposing concrete and innovative solutions. VIRQUAL has also been promoting cooperation and joint work among partner organizations and links with related initiatives, namely addressing other educational networks to help the dissemination of the results.

Following the successful organization of the VIRQUAL workshop at Eden 2010 in Valencia, we've organized a follow-up workshop focusing on presentation of the Virtual Mobility (VM) implementation guides and the discussion of concrete examples and opportunities on how virtual mobility of students can be organized, managed and supported within one country and/or within one consortium.

The Eden 2011 VIRQUAL workshop will include a short report on the theoretical framework of the research carried out. The definition of VM will be discussed in its relation to some of the basic principles of the implementation of the European Higher Education Area, namely transparency, accreditation and transferability of Learning Outcomes. It will be explained how those concepts and its application are critical for the effective organization of student mobility among HEI. The VIRQUAL team will also address how a wide agreement between institutional governing bodies and teacher staff can be achieved on those issues.

In the EDEN 2011 Workshop, we present this model and focus the debate in the following set of four opening questions:

- How can transparency be guaranteed on VM processes assuring institutional and public trust?
- Has the implementation of the ECTS credit system contributed to foster student mobility?
- How can virtual student workload measurement be effectively comparable across European HEI and different higher education sectors?
- Are HEI applying, in the design of their courses the concept of learning outcomes and how can we assure their comparability and transferability?

RESEARCH FOR A SUSTAINABLE FUTURE – CORE AREAS FOR FUTURE RESEARCH IN TECHNOLOGY ENHANCED LEARNING DISCUSSING SOME RESULTS OF THE STELLAR DELPHI STUDY

*Rosamund Sutherland, University of Bristol, United Kingdom, Hans Spada, University of Freiburg, Germany,
Marie Joubert, University of Bristol, United Kingdom, Stefania Aceto, Scienler, Italy*

STELLAR is a Network of Excellence of leading European Institutions in Technology-Enhanced Learning (TEL) which aims to set a mid-term agenda for Research in TEL. STELLAR has identified 11 core research areas and the aim of this workshop is to elaborate on the areas relevant to the EDEN audience.

In this workshop we will briefly present some of the early results of the STELLAR Delphi Study¹. This study has involved wide consultation with an international group of experts in TEL, which included, but was not limited to: researchers; teachers; policy makers; and representatives from industry. Participants have engaged in foresight activity in order to identify core research areas which might indicate priority areas to include on a mid-term research agenda in TEL.

Eleven core areas have emerged:

1. Computer-supported collaborative learning;
2. Connection between formal and informal learning;
3. Contextualised learning;
4. Emotional and motivational aspects of technology-enhanced learning;
5. Improving practices of formal education;
6. Informal learning;
7. Interoperability;
8. Personalisation of Learning;
9. Reducing the digital divide;
10. Ubiquitous and mobile technology and learning;
11. Workplace learning.

¹ Spada, H., Plesch, C., Kaendler, C., Deiglmayr, A., Mullins, D., Rummel, N., Kuebler, S. & Lindau, B. (2011). Intermediate report on the Delphi study – Findings from the 2nd and 3rd STELLAR Delphi rounds: Areas of Tension and Core Research Areas, http://www.stellarnet.eu/repository/deliverable_repository_list/

MUSIC EDUCATION IN DIGITAL WORLD: THE BINOMIAL OF MUSIC AND TECHNOLOGY IN THE NET AND THE WEB 2.0

Chiara Piccolo, MENON Network, Belgium, Gemma Fiocchetta, Istituto tecnico DEFFENU, Italy, Russell Blakeborough, Marcus Clements, Brightonart, United Kingdom, Per Larsen, KRS Holding, Sweden

NETSOUNDS Project: The Creative Use of the Musical Technologies and the European Network in Education

"The art of the twenty-first century will consist in imaging, building and providing mobile and interactive architecture of cyberspace"¹ and a considerable role in this gamble will be covered above all by education".

Reflecting and intervening today in the relationship among education and learning means, therefore and inevitably, lingering on technologies and related practices that allow a radical rethinking/transformation of the learning proposal

With NETSOUNDS project wants to transfer and promote into a European contest a wider rethinking of the educational impact that we might obtain from a model that conjugate music and ICT, a model well tested along 8 years of research, products and results

The NETSOUNDS network project, started in November 2008, was therefore born to transfer into the educational context in Europe a broader reflection on the learning potential of the use of music technologies in Education, in the frame of the conceptual background just above mentioned.

The main objectives of the network during the last three years of common work have been:

- to promote music education through new technologies and social networking tools
- to share the best practices of musical education through technologies and the internet
- to allow the educational institutions, the centers of research, the associations of teachers and students and the industry players to be kept informed about the new developments of music education through technologies
- to promote the cooperation among interested players, both private and public
- to encourage mutual understanding, and to support the synergies among the involved players

Music Education in Digital World: The Binomial of Music and Technology in the Net and the Web 2.0 – Workshop Content

The team of NETSOUNDS experts partners proposes a session to discuss best practices in digital music educational tools and digital music learning activities such as the collaborative production and the creation together of music products. Moreover, in line with the conference scope, the team wants to stimulate a debates with, and between, the audience in order to investigate how the use of a platform like NETSOUNDS, as a virtual space for the meeting of different experts active in the same field (music sector) and same experts (such as school teachers, PhD researchers) active in different contexts, could be an eco-learning space where people far from each other can work together.

¹ Pierre Lévy, *Choreography of Angelic Bodies, Cyber philosophy*

STRENGTHENING HIGHER EDUCATION MODERNISATION, INTERNATIONALISATION AND OPENNESS BY SUPPORTING TEACHER VIRTUAL MOBILITY – TEACAMP PROJECT WORKSHOP

*Patricia De Smet, European Commission DG EAC, Wim Van Petegem, University of Leuven, Belgium,
Airina Volungevičienė, Margarita Teresevičienė, Vytautas Magnus University, Lithuania, Aquilino A.Juan,
University of Oviedo, Spain*

The workshop contributes to the European discussion on modernisation of higher education (HE) via enhancing virtual mobility (VM) among academic staff. Though a number of EU projects have addressed VM needs and developed the tools to implement VM research, teaching practices and teaching virtual communities, VM still brings numerous problems and questions that arise at HE institutions and to individual learners. The benefits and impact of teacher VM on modernisation of HE has not been explored and estimated in one global view.

The workshop focuses on defining the current VM practices in Europe. It aims to provoke an international discussion on what still needs to be done at institutional and policy levels to support and mainstream current VM practices, especially teacher mobility. The workshop will address the following questions:

- What is the common understanding of VM on European, national and institutional levels?
- How is teacher VM beneficial for modernisation, internationalisation and openness of HE institutions? What impact has teacher VM for students, teachers themselves and HE institutions?
- What are the barriers and problem areas that need to be addressed to exploit (teacher) VM practices in European HE institutions?

During the workshop, the following presentations are made:

1. Virtual mobility in HE seen from a European perspective drawing on the experience of successful projects. Patricia De Smet, European Commission, DG Education and Culture.
2. Defining and strengthening VM through practice, methodological guidelines and quality assurance. Wim Van Petegem, University of Leuven, Belgium.
3. Teacher VM impact for students, teachers and modernisation of HE institutions. Airina Volungevičienė, Margarita Teresevičienė, Zina Baltrėnienė, Vytautas Magnus University, Lithuania.
4. Teacher VM barriers and problem areas. Aquilino A.Juan, University of Oviedo, Spain.

The benefit for the participants of the workshop consists of a better understanding and insight in teacher VM, its practical aspects, as well as theoretical background, based on good examples, experiences and prospects for VM development at EU level.

20 PARALLEL YEARS OF EDEN AND DGC

Sarolta Zárda, Géza Bognár, Dennis Gabor College, Hungary

History of Dennis Gabor College shows tight similarities with development of EDEN. Our college was founded in the beginning of the turbulent period of political and social changes of the last decade of the XX.th century, nearly in the same time as EDEN. The foundation and the early years of running of our college were fundamentally based on experiences obtained and published by the EDEN community.

New society seeks for new education system

Tremendous changes in political and economy system in Hungary yielded to tremendous changes in the education system as well. At the end of the eighties of the past century Hungarian society revealed that new issues should be found in aiming to fulfil new type social and economy requirements. After multiple modifications the present structure of the Hungarian HE is as follows:

- Elementary education (generally 6 years)
- Secondary education (generally 6 years)
- Post-secondary (vocational) education (generally 2 years)
- Higher education:
 - BSc level 3-3,5 years
 - MSc level: +2 years
 - PhD level: +3 years
- Distance learning was dealt first in the Law on Higher Education 1995, however this regulation was far from complete governing of this field both in respect of professional content and budgetary aspect too.

Sustainable learning by means of technological innovations

To provide sustainable training electronic background has invincible advantages over traditional paper support one. The access technology to the electronic content is in permanent development. Some years ago only static desktop PC-s were used, then a great boom of notebooks appeared. Now we are facing the mass use of iPods. And what the future brings? One thing is sure: people are trying to use all dead times in aiming to learn: voyage by train, waiting rooms... Modern electronic devices and intelligent environment allow the easy access to information, consequently the sustainable learning is more and more accessible.

After a short transient period in 2006-2007 we prepared our all teaching content according to SCORM standard and entered them to our content management system: ILIAS. We translated the software into Hungarian, and now we provide a user interface of the latest version in Hungarian. Our ILIAS team is a local knowledge centre in Hungary and we provide technical support for 15 other Hungarian institutions which are using this content management system. In 2009 we hosted an international conference of ILIAS operators and developers. Starting from 2010 first semester we provide exclusively electronic based learning content for all students both in distance and full-time courses. The result is evident: reduction of paper-use, easier editing of learning content

Legislation environment in Hungary

The structure, the human and budgetary resources are imposed by the current legislation. The government tries to find optimal solutions, so important changes are expected in the financing of the HE. In aiming to obtain a better correlation between goals and opportunities a new law on HE is envisaged to be published in 2011.

COMPETENCY VALIDATION AND MATCHING – THE ONTOHR WORKSHOP

Gábor Kismihók, Stefan T. Mol, University of Amsterdam, Patrick Duijts, Qompas, The Netherlands, Francesco Zoino, Giovanni Sorrentino, Valentina Castello, Gruppo Dida, Italy, Ildikó Szabó, Réka Vas, Corvinus University of Budapest, Hungary

Background – The OntoHR Project

Human Resource Management (HRM) and Technology Enhanced Learning (TEL) have never been so close to each other as nowadays. Scientists and academics in both fields have started to recognize the interdependencies between these fields. A growing number of publications tackle the possible interactions and collaboration possibilities. This has led to many exciting new questions and a search for interdisciplinary models and theories which will create a strong foundation for yet further collaboration.

Moreover, given the fundamental nature and the scope of this multidisciplinary subject, the societal (Life Long Learning) and the Industrial (hands on, usable models and systems in everyday business processes) relevance of such an endeavour is substantial, and its results will eventually feed through into society and into the corporate sector. The need of anticipating and managing the fine tuning among the relevant actors of the job market (companies, University and VET systems, individuals, social parts) is a key challenge of the EU strategy for an inclusive, competitive and innovative society. The proposed workshop intends to address these challenges and the related research and innovation fields, by focusing on the potential of innovative ontology based models and tools in governing the dynamic competences fine tuning. By working at the cutting edge of HRM and Knowledge Management supported learning systems, the OntoHR project (www.ontohr.eu) provide a compelling opportunity for training and transfer of new knowledge, with the added scientific benefit of advancing this new intersectoral field in Europe.

The focal research objectives of the OntoHR project are the following:

- *Competency measurement* – In our approach we measure students' / job applicants' level of competence vis-à-vis a particular job.
- *Mass-customized learning* – Based on an individual's competency profile, we provide a tailored training curriculum, which covers the indispensable knowledge elements for the target job.
- *Bridging education and workplace* – We are investigating whether competencies required by the industry and competencies offered by VET institutions are in line or not. If not, we want to investigate what the differences are, and how to provide training to bridge those differences.
- *Handling differences between European national VET qualifications* – we are working in three different EU countries (Italy, Hungary, The Netherlands), meaning that we have to align three different VET qualification systems and also have to bridge cultural differences.

SOCIAL SOFTWARE FOR SOCIAL INCLUSION: SUCCESSES OR FAILURES?

Thomas Fischer, Innovation in Learning Institute (ILI), University of Erlangen-Nuremberg, Germany, Joe Cullen, Arcola Research LLP, Davide Calenda, PIN, University of Florence, Italy, Martijn Hartog, eSociety Institute, The Hague University of Applied Sciences, The Netherlands, Wolf Hilzensauer, Salzburg Research Forschungsgesellschaft, Austria

'Learning 2.0 for an Inclusive Knowledge Society – Understanding the Picture' (Links-up; www.links-up.eu) is a research project about how 'Web 2.0' technologies – such as social networking software – are changing the face of education and training for normally hard-to-reach people.

The spread of social software in recent years has been phenomenal. Similarly the use of second generation Internet technologies – what O'Reilly once introduced as Web 2.0 and what today is extended to related terms such as Web 2.0, Learning 2.0, Enterprise 2.0 and Quality 2.0 – such as blogs, wikis, podcasts, tagging, 'folksonomies' (as opposed to taxonomies), 'peer-to-peer' (P2P) networks, 'Open Source Software' (OSS), social software as well as virtual worlds, is seemingly opening up innovative, bottom-up and direct possibilities for innovative learning as well as for social and e-Inclusion.

Advocates of Web 2.0 furthermore suggest that the Internet is substantially moving from passive publication to active participation; that the Internet is one of the major knowledge repositories for personal knowledge acquisition and learning, may it be acquired formally, non-formally or informally. It is furthermore increasingly argued that Web 2.0 applications can empower resistant learners and excluded groups by offering them new opportunities for self-realisation through collaborative learning, and by changing the nature of education itself. In particular, it is claimed that Learning 2.0 can make education more accessible, more fun and more valued for young people who have dropped out of school, and for older people who perhaps feel they have missed out on learning.

In addition personal learning environments are expected to gradually complement, enhance and probably replace formal educational and training arrangements, with no separation between, school, home and work anymore, thus in increasingly pervasive and ubiquitous ways. Beyond education, experts argue, Web 2.0 can make a big contribution to a more equal society.

Yet the evidence base for these conclusions is still fragmented and contested. There is for example also counter evidence that Web 2.0 can reinforce exclusion and reduce learning outcomes. Links-up therefore draws a picture of the 'landscape' of 'Learning 2.0 for Inclusion' by reviewing what has been done in the academic and research field, and what has been achieved by practitioners working on the ground in projects that have been using Web 2.0 to work with disadvantaged groups.

Links-up also applies a series of 'action research experiments', collaborating with 'live pilot' projects working in the field, to evaluate the added contribution Web 2.0 can make to practices that use learning to support social inclusion. It therefore contributes to build a grounded as well as integrated evidence base in the field of Web 2.0, Learning 2.0 and Inclusion 2.0.

This Links-up Learning Dialogue builds upon the results and follows up the successful workshop 'Is it all just Twitter? Can Learning 2.0 deliver the Goods on e-Inclusion?' held at last year's EDEN Annual Conference 2010 in Valencia, Spain. This year's workshop format combines again presentations, discussions and interactive working on the following thematic areas of LINKS-UP:

- *Target Groups*: How to reach them and how to keep them committed?
- *Practices*: What works with whom under which conditions?
- *Policies*: Which are the challenges to mainstream bottom-up initiatives and sustain top-down programmes?

The first session with short presentations will inform participants of the current state-of-the-art alongside with first evidences from the action research experiments, while the second part in turn with interactive Learning Cafés will provide opportunities to work with other experts and practitioners to exchange knowledge and good practices.

SUPPORTING TEACHERS TO IMPLEMENT WEB 2.0 IN CLASSES

Simon Heid, Innovation in Learning Institute (ILI), Germany

Results of recent studies about Web 2.0 teaching and learning in Europe show that existing pilot projects at schools are often driven by single, motivated teachers in grass-root approaches and that apart from support by the school basic knowledge, motivation and inspiration of teachers are necessary for realization of Web 2.0-related innovation.

The te@ch.us project sets up a web-based learning community for teachers who are novices in Web 2.0 and connects them to experts and experienced teachers for exchange of concepts, experiences and learning materials.

In the current piloting stage of the project, teachers, who initially joined the community as novices in Web 2.0 teaching, are encouraged to implement their own Web 2.0 pilot initiatives in classes. A series of Webinars about different Web 2.0 related topics provides them with the necessary basic knowledge. Each Webinar is followed by a concrete proposal for implementation activities and teachers are supported in an online forum while implementing their own pilots in school classes. Teachers are then animated to report about their experiences on a special practices section on the te@ch.us website.

The last Webinar in the series, to be held live during this workshop, will resume the earlier Webinar topics and have a special focus on implementation aspects. The workshop summarizes the current situation of Web 2.0 implementation in school classes regarding teacher's needs, barriers, potentials and future pathways and presents the previous results of the te@ch.us project. Workshop participants can follow and actively participate in the te@ch.us piloting approach in a live setting.

ENGAGEMENT IN SCIENCE EDUCATION: SUSTAINABLE ICT AND COMPUTER BASED TOOLS FOR FOSTERING AND ENHANCING THE ATTRACTIVENESS OF SCIENCE EDUCATION FOR STUDENTS AND INFORMAL LEARNERS

Chiara Piccolo, Walter Kugemann, MENON Network, Belgium, Claudio Dondi, Scierter, Italy, Sofoklis Sotiriou, Ellinogermaniki Agogi, Greece

As stated in the EC report “Challenging Futures of science in Society” science communication opportunities are increasing. Traditional mass media remains the most important medium for raising awareness and engaging citizens who may not be particularly interested in science. The internet and its use offer easy access to scientific information. For this purpose, journalists, press officers and in general all the professionals who works in information and communication sector can do a lot and their involvement in science “world” could be of great help in term of communication and dissemination of science results and their impact in the daily life to attract people and students in science. On the other side, science museums and centres and Universities science labs provide a unique source of knowledge and opportunities for dialogue and engagement with science through exhibition objects, activities and events for different target publics. Many science centres and museums nowadays also provide access to detailed information and accompanying programmes through the internet, moreover many universities have opened their science labs to general users thanks to remote access. However, specific information can be difficult to find for users and there is no unified system to retrieve information from European science museums, centres and universities.

To tackle this situation, the authors of this paper are running two different but complementary projects (OSR – OpenScience Resources and UniSchoolLabs) that address to those needs. Furthermore, they want to reflect on future development in making science closer and closer to students’ interest and to citizen in general thanks to the involvement of information and communication professionals for disseminating in an understandable way, science results and their “concrete” impact in real life.

APPS FOR IPHONES TO SUSTAIN AND STRUCTURE LEARNING

Julie Laxton, Nancy Davies, James Rone, Tamsin Treasure-Jones, University of Leeds, United Kingdom

Introduction

There are central government drivers for interprofessional assessment (Craddock et. al., 2006) and there is an opportunity for health and social care students to take feedback from professions, other than their own, when working in practice settings. To assess interprofessionally in practice is not a common occurrence within these professions. Therefore, in order for this interprofessional assessment to be practical, it was important that they were based on commonly agreed standards, and that these standards were accessible to the students.

The 3 common competences of communication, team working and ethical practice were mapped using representatives from 16 health and social care professions across 5 HEIs. www.alps-cetl.ac.uk/maps.html. The health and social care professions are strongly regulated, and assessing across professions required the professional, statutory and regulatory bodies (PSRBs) to support this development. Additionally, in order for the students to gain feedback and write their self reflection, the common competences provided a framework for them to refer to.

Several aspects are important for the success of this project:

- the common competences to provide a framework for interprofessional learning
- the students to be able to access the information quickly and easily in order to develop good reflective skills and learn and develop from the process, whilst still experiencing in practice.

Therefore it was decided to enable greater access to the tools and competency maps by delivering on mobile device in addition to having web access.

Method

The ALPS programme evaluated mobile learning by delivering 900 mobile devices across 16 health and social care undergraduate degree programmes. Looking at how the mobile devices impacted on the students learning and communication whilst on placement.

As a result of the work of ALPS the University of Leeds, School of Medicine went on to purchase iPhones for use with 500 4th and 5th year medical students. These iPhones are being used to deliver educational resources in the form of ebooks and apps that record feedback when out on placement and send the results back to an online portfolio system.

The ALPS app delivers the ALPS Competency Maps in a linear fashion. All three maps are presented together and the students can choose to burrow down in to each map to a base performance criteria level. At this point students can select to add notes about evidence for these criteria and can also mark criteria when they have gathered sufficient evidence illustrating where there are gaps in their learning. The development of these apps was guided by student and staff input.

What's next?

This app will be made available free on the Apple App Store from March 2011. Cohorts of health and social care students will be able to use it to supplement their learning. Next year we will hold focus groups to evaluate their effectiveness in supporting general placement learning. ALPS is also currently creating a fourth map on Patient Safety which will be added to the app at a later stage.

M-LEARNING MANAGER – A NEW CHALLENGE IN JOB ROLE RECOGNITION AND TRAINING

Nevena Mileva, University of Plovdiv, Bulgaria, Desmond Keegan, Distance Education International, Ireland

Never in the history of the use of technology in education has there been a technology as available to citizens as mobile telephony. One can safely conclude that every student in every higher and further education institution in every country in the European Union possesses one. They use these communications devices constantly in every walk of life – except their education.

The definition of mobile learning used in the mLeMan project is 'Mobile learning is the provision of mobile learning on mobile devices'. This definition may be expanded to "Mobile learning is the provision of mobile learning on mobile devices: Personal Digital Assistants (PDAs), smartphones, mobile phones, handhelds, palmtops, MP3 players and similar devices'. The definition may be further expanded to include 'learning on devices which a lady can carry in her handbag and a gentleman can carry in his pocket.'

Since 2007, iOS devices (iPhone, iPad), Google Android devices and their competitors from Nokia, Samsung and Blackerry, revolutionized the field of wireless telephony. Telephony will never be the same again. Wired telephone boxes stand deserted throughout the world as citizens stand outside them talking on their mobile phones.

The popularity of smartphones has been supported by the latest research from the International Data Corporation (source: *IDC worldwide quarterly pc tracker*, January 12, 2011). It said that vendors shipped a total of 101 million smartphones during the fourth quarter of 2010 compared to the total of 92 million PCs. Apple announced on January 22, 2011 that more than 10 billion apps have been downloaded from its revolutionary App Store by the more than 160 million iOS devices. There are currently 350,000 apps on offer in the app store. Gartner forecasts that 21 billion Android app downloads will be reached by 2013 yielding revenue of \$30 billion.

It is this revolution in telephony caused by the Apple iPhone and the Google Android that is the background to the m-Learning Manager project.

The m-Learning Manager project (mLeMan) aims to develop and mainstream a Europe-wide skills recognition and qualification service for m-learning managers, and other individual management levels charged with evaluating, sourcing or implementing m-learning solutions. The project is carried out in the context of growth of m-learning because of m-technology development and availability, and because of the paucity of qualifications and programs paucity at managerial levels in the field.

The mLeMan project is aimed at the near future when the impact of the arrival of the new smartphones, the Apple iPhone, the Google Android, the new Blackberries, Nokias, Samsungs and others will bring the field of mobile learning into mainstream educational provision, side by side with the other sectors of provision: face-to-face education, distance education and e-learning.

The mLeMan project will contribute to a future in which the sluggish development of the field to date, due to the well-known problems of screen size, difficult data input and battery life, will be overcome by the affordances of the new smartphones. For this to be achieved the minimalist projections of even the best authorities in the field that mobile learning can only be used for snippets of information need to be replaced by the production of full modules of learning materials so that the field can take its place in the mainstream.

M-LEARNING AS A PART OF E-LEARNING

Vladimir Slepov, Olga Grishina, Elena Sidorova, Russian Plekhanov University of Economics, Russia

Introduction

Having being involved in the e-learning process for a rather remarkable period of time, Russian Plekhanov University of Economics and its Faculty of Distance Learning are constantly looking for new ways to provide educational services. Technological challenges of the present day world such as the ever growing usage of mobile technologies (and the addiction of students to their mobile phones) have prompted to include mobile phone technologies in the context of the learning process. iPods and iPhones being so fashionable among present day Plekhanov students mobile learning will easily become an integral part of the educational process making learning more exciting and offering new opportunities.

Environment analysis for m-learning

According to statistics in Russia the number of people using mobile devices is rather high: 86% of population older than 12, though most of them have ordinary mobile phones. The share of sophisticated and functional smart phones and communicators comprises only 9%. And only about 22 million people (18% of people over 12) use mobile internet which is rather low comparable to home cable link users (31 million people).

While the introduction of m-learning as an additional tool in the educational process of full-time students living in Moscow seems quite natural and even easy, the real challenge which the Faculty of Distance Learning faces is how to deliver educational content to the places where mobile phones are the single means of communication.

In many regions internet can be accessed only through WAP or GPRS which is not completely reliable and fast but expensive.

Pilot project for m-learning

The Faculty of Distance Learning while providing Bachelor and Specialist Degree education is seriously involved in a lot of additional short-term programmes which are equally important for to teach the learners how to cope with quickly-evolving world of today. People living in remote places need to be constantly informed and trained to deal with new tasks without having to leave their working places. A programme devoted to state orders allocation and closely connected with the President's ideas to fight corruption has been elaborated by the faculty. The challenge was how to deliver the content to the places with no fibre optic communication. Communication via ordinary post proved to be too slow and old-fashioned. We assumed that SMS service is available on all mobile phones in use today and the delivery is guaranteed.

So a pilot project for two target regions, Altai and in East Siberia, has been launched, special questionnaires have been sent to the volunteers in these regions and two different groups have been formed: 1) those who can only receive text messages on their mobile phones but can get high speed Internet access from time to time (e.g. at their regional post offices) and 2) those who can download the content onto their mobile devices. Unfortunately we can not provide our services to those who have no access to internet at all.

With the first group we have agreed to send text messages informing them that new materials have been uploaded to the site. We also welcome them to ask questions via SMS. The idea of testing and assessing their knowledge via SMS had also been elaborated but after some modelling it proved to be too complicated and expensive.

As for the second group we are now in the process of adapting traditional web-pages for viewing on small screen, taking into account the limited data transfer rate and very slow connection speed. The first step will be concentrating on providing information and tests.

Our first results have already proved that mobile technologies should become an integral part of distant learning providing it with more flexibility and portability.

ICT AND MOBILE TECHNOLOGIES BASED LEARNING: OPPORTUNITIES AND CHALLENGES

Danguole Rutkauskiene, Daina Gudoniene, Kaunas University of Technology, Lithuania, Caroline Michalak, Fast Track into Information Technology, Ireland

In today's world the use of ICT has become one of the most influential factors that determine both the present performance and the future conditions for a person, especially for Youth at Risk. Information communication technologies (ICT) change conditions of work and education. We witness an increased demand for qualified personnel, new types of jobs and an emphasis on knowledge and information. ICT mediation in a learning process redefines the traditional teacher – learner relationship and establishes new forms and methods in education. It places emphasis on learning results, i.e. the capability to access a wide range of information but not on the environment of the learning process (face-to-face communication, place, time). Different ICT and mobile technologies could be used for different social groups, like Youth at Risk, in the Knowledge Society where technologies mediate new opportunities for learning. The use of information communication technologies in education has introduced a new set of educational opportunities for educators and students. That is why it is so important to understand the attitudes of educators towards distance education as well as ICT based learning and mobile technologies. The key questions framing this article are as follows: What are the theoretical debates about the concept of ICT based learning and mobile learning in education for Youth at Risk? What are the needs of Youth at Risk and how could new technologies assure successful delivery of education to this group? This article explains the main concepts of providing ICT based learning, focusing on new opportunities.

Web 2.0 – Mobile Learning mainstream education and training providers

Every European country has a group of “youth left behind”. Across Member States they share the common fact of being disadvantaged, in many cases from the day they were born. They are mainly young people who never entered a formal path of education, came from an immigrant background and/or live in remote neighbourhoods. Their situation has become even more difficult within the economic crisis that currently affects many countries in Europe. Youth at Risk is now experiencing multiple barriers in accessing the labour market and is at a high risk of the exclusion from the EU working society. In the same time there is growing evidence that innovative ICT, Web 2.0 and Mobile tools can enhance the learning delivery for Youth Learners and their engagement with mainstream education. The great strength of such learning tools is their capacity to support informal learning, which provides a secure environment for acquiring knowledge and rebuilding confidence among Youth Learners. An ICT model for education providers will be developed, it will give guidelines on what Web 2.0 and mobile learning technologies as well as different pedagogic approaches work best in meeting different needs of Youth at Risk. In addition, it will provide advice on what are the best ways to implement these technologies and approaches in the organisation. The eFuture programme on life and work skills will consist of pick-and-mix modules that mainstream education and training providers can implement into existing programmes to transform engagement and learning outcomes for Youth at Risk. Tutor learning resources will be developed as a set of training materials for tutors, who want to deliver training with Web 2.0 and mobile technologies. ICT introduced a new set of educational opportunities for educators and students. Analyzing the advantages that are provided to the learner by IT mediated education different authors (such as Jackson, K.H. (2002), Gorski, P. (2001), Rutkauskiene, E. (2007)) emphasise the following points:

1. Increased amount of information. The resources and materials available via the World Wide Web and mobile technologies expand information supply to a virtually infinite degree. The virtual libraries, collections of articles, dialogue forums, various databases, and historical archives from all around the world are available for everyone who uses the Internet.
2. Opportunities of interactive learning. Information technologies allow interactive communication: students can ask expert in the respective field specific questions regarding any topic.
3. Interdisciplinary and multicultural perspectives in learning. At a global level e-learning provides individuals with wide intercultural competences, social and global awareness. The use of internet and mobile technologies resources allows learners to view the same issue from different cultural, national, religious perspectives which cannot be done during traditional lessons/lectures.
4. On-the-job training opportunities. E-Learning provides an opportunity to learn without leaving the work place (Redecker et al., 2009).

Social computing tools (Web 2.0 technologies) are expected to enhance learning processes and outcomes in a number of ways. It is believed that they will respond better to the changed cognitive processes and learning patterns that have evolved due to the ubiquity and widespread use of information and communication technologies.

OPPORTUNITIES AND CHALLENGES OF USING E-PORTFOLIO IN HIGHER EDUCATION

Sandra Kučina Softić, Zvonko Martinović, Tona Perišić Pintek, Zoran Bekić, University of Zagreb, Croatia

Introduction

One of e-learning tools that were recognized as valuable in enhancement of the quality of teaching and learning and orientation towards student-centred learning is e-portfolio. E-portfolio can have several purposes in education, from storing learners' work, recording achievements, for presentation and marketing purposes, to becoming valuable learning activity in education process. It has been present for a decade and its benefits in education were immediately recognized with predictions for prominent future. But today, it is still being rediscovered, explained and introduced despite some really good examples of use. There is still a need for explanation of e-portfolio issue and its purpose. The University of Zagreb started with the process of e-portfolio implementation in 2008. Here are presented reflections on the implementation progress. The aim of this paper is to summarise opportunities and challenges of using e-portfolio in higher education.

Opportunities and challenges of using e-portfolio in higher education

Having e-portfolio enables one to collect and store digital data in different types, from text files to pictures, video and audio clips, to blogs and bookmarks which make e-portfolio flexible and transportable. Collected items can be organised, categorised or structured. In order to make portfolio effective and up-to-date, data should be put regularly and preferably indexed. The e-portfolio can be used for specific purposes, but over time the purposes and needs may vary and e-portfolio can be adapted and extended.

E-portfolio can be private or it can be shared with friends, other students, family or teachers. It enables communication as well, collaborative work in groups and socialisation. Private e-portfolios are visible only to its owner and are named as "personal" as they are private and a person does not have to share it or show it to anybody. They are also called "workspace" as they represent a process in which the owner "works" on the portfolio by collecting data related to his/her work, education and interest, organizing them, reviewing and reflecting on them. The e-portfolios can be an excellent tool for producing and maintaining resume as well. Depending of the e-portfolio software, the structure can be flexible and in freestyle or structured.

"Showcase" e-portfolio is a product which is made with the aim to present someone or something to the audience. It is part of personal online space made public through multiple views and available to the selected viewers (friends, employers, awarding bodies). Development of the e-portfolio offers an efficient way of demonstrating competencies. Creating showcase enhances development of such skills as critical thinking, organization, redesign or self-presentation necessary in pursue of job in today's society.

Main opportunities of e-portfolio are in the educational process. It can be used for assessment (summative or formative), demonstration of learners' achievements, recording learners' progress or for reflective learning and self evaluation.

Reflections on e-portfolio implementation at the University of Zagreb

E-portfolio as e-learning tool is relatively new at the University of Zagreb. There have been some attempts for its use in education by individuals, but to the broader audience it was introduced in 2008. Within e-learning strategy, e-portfolio was seen as the system for students' support during their education, enabling them to record their achievements and experience obtained during their studies, but also as a way to present their qualifications and competencies to future employers in pursuing adequate job and starting professional career. The use of the e-portfolio in the learning process is still at its beginning, but there is already a number of courses which use e-portfolio for the formative assessment and monitoring of the students' progress in the course.

THE USE OF ICT AND EMERGING TECHNOLOGIES IN HIGHER EDUCATION CASES OF GOOD PRACTICE

Geir Hareide Hansen, University of Nordland, Norway

Introduction

This paper is focusing on the ongoing processes in the priority area called “The Flexible University” at the University of Nordland, Norway. University of Nordland and its Centre for Life-Long Learning initiated the priority area which included a new way of thinking regarding the use of ICT and emerging technologies in the University’s educational programmes. The purpose/aim of the priority area was a) to put the University in the lead nationally when it comes to flexible learning and b) to become a University with a range of flexible programmes for the region (Nordland county), nationally and in the long term internationally. At the present time, University of Nordland and Centre for Life-Long Learning are involved in several projects with the aim of using ICT and emerging technologies, among others:

- Nordic Knowledge on the Web¹, a three year cooperation agreement between the universities in Umeå (Sweden), Vaasa (Finland) and Nordland (Norway), where the project aim is developing a cooperation within the fields of education, research and dissemination through a mutual website – and of course the use of ICT and emerging technologies.
- An online, session-based Bachelor in Nursing (180 ECTS) – 50% of the programme consists of internship or supervised professional training with online academic supervision by our academic staffs.
- Match Analysis (10 ECTS) – an on-line course within the specialised programme for teachers/coaches in Sport.
- Teacher Education Programme for the lower primary school grades 1 to 7 and upper primary school grades 5 to 10 (240 ECTS), started autumn 2010 as a combination between on-line courses, session based teaching and periods of practical training.
- Classroom Management in a Virtual Learning Environment, a finalized project with a game based approach to the challenges of managing a number of pupils in the classroom.

Cases of good practice

The paper especially explores two key aspects within the priority area; the benefit of having a dedicated staff of support (with technical and pedagogical skills) for the academic staffs, and the new and various teaching methods of the academic staffs regarding web-based learning and on-line courses. Bachelor of Nursing is an on-line programme combined with session-based teaching, internship and supervised professional training. The academic staffs has to use different set of tools within Fronter (LMS) to engage the students, and also different kind of software (e.g. Camtasia Studio) or other solutions to produce course material for the compulsory subjects in the programme.

Conclusions and recommendations

So far the student evaluations of the programme are positive, all though there still are a lot of issues to improve. One of the aspects the students bring up as the most important issue with web-based learning is the programme’s flexibility. Another issue is the fact that online lectures like videos (the ones made by the teachers or in the studio) are a popular addition to the compulsory readings, especially the opportunity to watch the same lecture over and over again. This is also a benefit for the ordinary programmes at campus, as the teachers now a day are using their online material for the campus student.

The first class of web-based Bachelor in Nursing still have (at present date) three years left before graduation. Time will show whether the web-based programme is as good as the campus programme – and, we have to have in mind, the web-based programmes may be the only opportunity for many to get some formal qualifications.

¹ <http://nordicknowledge.net>

THE E-VIEW PROJECT – PROMOTING SUSTAINABILITY IN LEARNING THROUGH THE CREATION OF A EUROPEAN VIRTUAL ENVIRONMENT FOR WORK-BASED LEARNING

Abi Reynolds, Leo Casey, National College of Ireland, Ireland, Sally Reynolds, ATiT Audiovisual Technologies Informatics and Telecommunications, Belgium, Margarida Amaral, Universidade do Porto, Portugal, Małgorzata Gramala, Uniwersytet Łódzki, Poland, Sarah Frame, University of East London, United Kingdom

E-ViEW Building a European Virtual Environment for Work-based Learning

Employed learners need flexible and professionally relevant opportunities to gain high-level skills to equip them for career progression within the emerging knowledge-based economy. Flexible ICT supported learning solutions can allow learners to achieve these skills. The European Virtual Environment for Work-based Learning (E-ViEW) project was created to address this need. Partners in E-View are developing and piloting a European Virtual Campus aimed at learners in the work place which will enhance their management skills and competences within a European context.

E-ViEW is a European Funded project under the Lifelong Learning Programme led by the University of East London and run in partnership with National College of Ireland in Ireland, ATIT in Belgium, University of Porto in Portugal and the University of Lodz in Poland. The project began in October 2010 and will finish in September 2012.

The project begins with a needs analysis followed by the creation of the Virtual Campus Framework. The VC, with an emphasis on working within Europe, is being piloted with at least 100 learners in the UK, Poland, Portugal and Ireland. Concrete outcomes from E-ViEW include a Virtual Campus Framework for Work-based learning with a sample module, a pilot implementation of this course and an online handbook with a description of the experiences gained during this programme.

E-ViEW and Sustainable Learning

Sustainability is taking on new meaning in relation to learning. It has expanded from a definition based purely on environmental issues to include other aspects such as flexibility, innovation and inclusiveness. These three concepts are principle ingredients in the development and deployment of the E-ViEW Programme.

Sustainability and Flexibility: The core activity of the E-ViEW project is to design and develop an innovative Virtual Campus that will provide a more flexible, sustainable learning solution for work-based learning.

Sustainability and Innovation: An open source VC, customised to support WBL does not exist. The project specifically sets out to find creative solutions to the critical success factors of a WBL VC implementation.

Sustainability as an inclusive concept: The establishment of an innovative VC makes access to education more flexible both in terms delivery and accessibility. It allows more learners to access learning at a time, place and pace that suits them.

E-ViEW and Presentation at EDEN Conference

By June 2011 we will have completed the first stage of the project; Identifying Needs and Comparative Analysis. The poster presentation will present the findings of this activity and will discuss the impact on the next stage of the project; the design and development specification of the Virtual Campus. We will look at key questions such as; *What will a VC for Work-based learning look like? Which management skills and competencies are important in a European context? What Pedagogic Designs and Learning Strategies are relevant for our VC?* We will discuss findings in terms of the key areas of sustainable learning; flexibility, innovation and inclusiveness and consider their importance to the success of the E-ViEW Programme.

IMPROVE E-LEARNING THROUGH READING – AUTOMATED TAILORED TEXTS TO ENHANCE COMPREHENSION

Francesco Agrusti, University of “Roma Tre”, Italy

Reading is one of the basic skills for learning and not rarely, also in distance education courses it represents still the main way of achieve knowledge, even in the more advanced and interactive approaches to e-learning. Though new e-learning proposals offer more often 3D simulations or audiovisual materials, the great part of complex contents in e-learning is still veiculated through written language. That is why we believe that one of the crucial characteristics in enhancing quality in distance education is the linguistic formulation of the messages offered to the students during the course. The main aim of our project is to *modulate* written messages in order to match the potential reader profile, i.e. a student, using an automated process.

In order to obtain an outline of the potential reader in a distance course, we identified in the first place the *virtual reader* profile, i.e. the best level of verbal skills needed to understand course texts. The verbal competences are outlined starting right from texts' lexicon and language. We assumed that the *virtual reader* knows and fully understands the meaning of the words included in texts. Furthermore, we tried to define the *real reader* profile, his/her “word box”. It identifies all the unique words known by a student, in other words his/her lexicon. Generally, we expected also that the real reader has a lower level of verbal skills compared to the virtual one.

Decreasing the text level, in terms of lexicon and language, from *virtual reader* level to *real reader* level, is an extremely complex procedure with more than one possible failure. We tried to reduce the complexity without losing any details, focusing only on the number of words known or not known by the student. The process consists at least of two main phases. The first one is to estimate the number of words in a given student's *word box*. The second one is focused on increasing this number through a modulation of course texts. We develop an electronic platform, called *OrbisDictus*, to integrate the entire process in a Learning Management System for distance education.

To estimate reading comprehension and verbal competences, we developed an automated solution to create tests called LexMeter. This software allows us to create tests specifically focused on a fixed topic using a full self-sufficient system and limited human intervention. To achieve this phase, we started from the following hypothesis: the lower the word frequency of word taken out from the text, the higher the difficulty of the cloze test.

But how increase the number of words? The described scenario led to another hypothesis: increasing details in explaining low-frequency words helps students understanding the text. The modulation is obtained introducing this brief explanation right inside the text (*Adapter*), in order to allow the student to completely understand the words contained in the text. This algorithm is used only for that words with a frequency considered low for that student profile. Thanks to this process, the learner could easily use the adapted material (e.g. reading the text) but he/she will found some points in the text slightly difficult for him/her level. In this way, it is our opinion that the learner will expand his/her *word box* thanks to the new words obtained.

This poster aims at illustrating our research results about the developing of software prototypes for automated production of cloze tests (LexMeter) and for automated modulation of course texts that could match up the real reader verbal competences (*Adapter*).

LEARNING NETWORK AND SOCIAL METACOGNITION FOR SUSTAINABLE (PEER) LEARNING

Ulf Olsson, Stockholm University, Sweden

Sharing learning experiences

The model "Learning Network and Social Metacognition for Sustainable (Peer) Learning" includes the student as an individual learner in a social context, studying by using different kinds of learning resources, teacher/supervisor and other students. The model addresses collaboration in the web 2.0 environment and how to enhance information flow and to benefit from peers' preferences and experiences regarding both learning resources and teachers/supervisors.

The model's general purpose is to illustrate the relationships that exist in a learning network. The model's specific purpose is to clarify the relationship between other students (and teachers / supervisors and the relationship between other students and learning resources (texts, links, lectures, seminars, etc).

The model focuses on individually adapted support, tutorials, communities and digital learning resources for the realization of independent life-long learning. The research question is: How can a student take advantage of the experience, knowledge and preferences of other students' studies, in addition to planned or spontaneous peer-to-peer work, review assignments, peer assessment scheduled by the teacher and/or other organized forms of cooperation? This sort of help can be very useful for the student. This type of information is especially important when students are expected to regulate their own learning to a large extent due to lack of supervising resources and other kinds of student support.

One way of checking the relationship is the use of a recommender system that uses input from user ratings to predict the students' preferences. The recommender systems that have been developed during the last 15 years for a range of purposes can be divided in two categories: (1) content based using metadata and (2) collaborative filtering systems. The latter variety uses parameters built upon the relation between users and the ratings of different users and it can predict users' preferences in a way that could be utilized in an educational setting.

Two pilot studies

While interaction student-teacher/supervisor, student-learning content are frequently described in research literature and in teaching handbooks, the relationships above are not fully explored in the current literature.

During the first half of 2011 a literature review and two pilot studies of self-regulated learning will be conducted. An empirical environment is utilized which includes an advanced matching system between the 230 students and 60 supervisors for the thesis works on the Bachelor and Masters levels.

The aim

The aim is to develop the model by means of the literature review and the two pilot studies. The results will be implemented in the model "Learning Network and Social Metacognition for Sustainable (Peer) Learning".

E-LEARNING SUSTAINABILITY: FREEDOM IN LEARNING AND RECOGNITION IN CERTIFICATION

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Sustainability in online education is a challenging issue for many educational institutes which have to modernize their educational process using ICT infrastructure to meet the demand of 21st Century. On other hand, sustainability like quality in online education could convey different meanings and expectations for different stakeholders. Hence, we have identified the sustainability with respect to learners (students), facilitators (teachers) and providers (educational institutes). Latter one, the institutional sustainability, is the foundation for the continued and uninterrupted e-learning service and it also links to both the learners and subject matter experts (SMEs) to develop their interaction beyond the traditional expectation.

Income generation or return on financial investment is an indicator of sustainability but it does not describe all aspects of e-learning investments. In an educational institute, human resources that are being developed for a period of time, are valuable than the material investment such as buildings, teaching and learning equipment since the process of education is highly human sensitive and dependable one. Similarly, the sustainability of e-learning depends on ability to maintain the key workforce which facilitates the process while they are being developed to face the demand and changes in the environment. In this study, we have identified following categories for e-learning sustainability based on a project to establish the National e-Learning Centre (NeLC) at the University of Colombo School of Computing (UCSC).

- Intuitional commitment, partnership and integration of e-Learning into academic process
- Hardware, Software and Network Infrastructure for ICT based service delivery
- Adopt ICT based pedagogical approach to provide educational service
- Human Resource and Knowledge Management for e-Content Development
- Teachers willingness, motivation and ability to use the ICT facilities
- Students ICT literacy
- Affordability and Recognition

In this paper, we are presenting how above factors of e-Learning sustainability were helpful in developing online courses/programmes and also maintaining those courses to provide continued service at the UCSC. We believe that learners are main stakeholders who contribute the sustainability and their requirements must be addressed in a learner centric environment while developing trust and faith towards the institute. Hence, the Open Learning Initiative in an organization plays an important role in developing initial relationship among learners and teachers. 40 Free online courses were published under the initiative of National e-Learning Centre Project at <http://www.e-learning.lk/vle> and this was announced as the Free and Open Online Education (FOOE). These courses' main objective was to increase the ICT literacy of prospective learners who will follow courses of organization. At the same time, these e-Content of FOOE courses are shared with other organizations to develop the Private Public Partnership (PPP) and to facilitate the access to learning materials in a more productive way.

Starting from FOOE courses, a learning path was established to provide the continuous and flexible learning for those who are following those online courses. Freedom in learning describes on demand access to e-Learning content depending on the users availability and the flexibility of deciding when to take assessments for certification. When the learners complete their assessments of courses, recognizable certificates are issued while granting the permission for them to continue their education on the learning path. Identity and authentication of candidates were verified when assessments were conducted and a nominal fee was charged to cover the cost. Since the program/courses are online there were no limits in the intake and fees for registration and examination was between 10-25 US\$ per candidate.

Details of how this sustainability framework was established from free courses to paid online degree programme was presented in this paper. Our main emphasis was to provide the freedom in learning while recognizing their performance through acceptable certificates.

SUSTAINABLE EDUCATION THROUGH E-LEARNING AND THE USE OF WEB 2.0 TOOLS: SHOWCASE USE OF E-PORTFOLIO IN AN ADULT EDUCATION PROGRAM

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Key competences for lifelong learning

The purpose of this paper is to explore the importance of key competences as defined by the Lisbon Strategy for sustainable education and possibilities for their development through the use of e-learning and web 2.0 tools. Lisbon Strategy defines 8 domains of key competences for life in the knowledge society, which should ensure safe integration of individuals into the fast-changing technology-based society of today. Lifelong learning nowadays is a reality and individuals need competences which will enable them to learn, relearn and unlearn. Hypothesis is offered that if we are to ensure that the education we provide is sustainable and just-in-time, key competences should be the basis for learning outcomes. The authors argue that the role of ICT in providing sustainable education is vital, and is realised through the use of e-learning and web 2.0 tools in education programs.

E-learning and web 2.0 for sustainable lifelong learning

Owing to the possibilities provided by ICT, knowledge in any field nowadays can change in a matter of months. The changes are particularly apparent in the work environment, where success depends on constant updating of relevant information and knowledge. In order to provide students with competences they need in their subsequent career, education institutions should constantly update their pedagogical strategies and methodologies, including the use of ICT for the delivery of teaching materials and instruction. The paper suggests that e-learning and web 2.0 tools provide a platform that caters to these needs, as they enable easy publishing and development of online content, in addition to stimulating interaction, resource sharing, communication, collaboration and the development of online communities. Consequently, they enable the instructors to put the learners in simulations of real-life situations, to employ methods such as project- and problem-based learning, send the students "out" to explore, research, find relevant resources, communicate, collaborate and share, not only with their peers but with learners and experts from across the globe. The authors argue that through the use of e-learning and web 2.0 tools several key competences are developed – interpersonal and civic competence, cultural expression, communication in the mother tongue, as well as foreign language, and in particular learning-to-learn and digital competence.

The paper showcases the implementation of e-learning and web 2.0 technologies for the development of key competences in adult learners through the use of e-portfolio in the programs of the E-learning Academy, a two-semester education on using ICT in teaching practice. During their education, participants are asked to use Mahara, an e-portfolio tool, with the purpose to induce them to reflect on their learning, develop metacognitive skills, provide them with a deeper understanding of the subject matter, and consequently to develop key competences. The tool has been used for two academic years (2009-2011). A survey was conducted among the participants of both generations with the aim to verify the assumptions that reflection and awareness of their learning was beneficial for adult learners and developed their learning-to-learning competence, as well as that the development of their own e-portfolio using a social software tool improved the participants' digital competence.

Conclusion

The results of the survey suggest that, if used properly, e-portfolio or other web 2.0 tools with similar characteristics are suitable tools for the development of the learning-to-learning as well as digital competences. Authors argue that there is meaningful potential in using e-learning and web 2.0 tools for providing sustainable education on all levels, as these tools are user-friendly and easy to use, require minimal digital literacy input while, by using them regularly, learners further develop their digital competence. Authors conclude that web 2.0 tools are characterised by collaboration, communication and sharing, and using them in education (e-learning) can contribute to the development of key competences ranging from learning-to-learn to interpersonal and civic competence, cultural expression, communication in the mother tongue and foreign language.

EQUIPPING TUTORS WITH STRATEGIES TO EFFECTIVELY TEACH IN SYNCHRONOUS ONLINE TUTORIALS

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Teaching Online

As more and more educational institutions move online there is a growing need to prepare faculty to 'teach' online. Faculty professional development programmes have traditionally focused on the role of the tutor in moderating online discussions in asynchronous settings. However, recent advancements in conferencing technology and in the availability of broadband are allowing tutors and students to interact online via 'virtual classrooms'. These 'virtual classrooms' provide tutors with new opportunities to teach and to engage learners. Unfortunately many tutors are not exploiting these new opportunities and are merely transferring their 'traditional practice' from face-to-face classroom settings online. Therefore there is a need to equip tutors with the competences and teacher knowledge to teach effectively in these new 'virtual classrooms', using synchronous conferencing tools such as *Interwise*.

This poster will present an EdD thesis proposal in this area which will focus on identifying the knowledge teachers require to teach effectively online. Using the TPACK Framework the proposal will outline the research problem, proposed literature review and the proposed research methodology, which is currently being finalised. The TPACK Framework, developed by Mishra and Koehler at Michigan State University, is designed to identify and analyse the knowledge teachers require to teach using digital technology within a specific context. This study will focus on identifying the knowledge teachers require to teach using synchronous conferencing technologies on an existing Masters of Arts in Teaching and Learning Programme (MATL) within Hibernia College. The majority of tutors on this programme are experienced teaching in face-to-face settings and we want to identify the knowledge they require to effectively teach in our 'virtual classrooms'. Currently the majority of research in this area pertains to asynchronous technologies and there is limited research on synchronous technologies. This proposed is currently being finalised for submission to the Institute of Education and it is proposed to commence this research during Summer 2011 having received College approval.

DESIGNING A DIGITAL TEXTBOOK FOR LEARNING ENGLISH AS A FOREIGN LANGUAGE

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Introduction

Digital textbook in this study is defined as an electronic textbook that includes the existing paper-based textbooks, activity booklets, integrating with multimedia and interactive contents such as video-clips, animation, virtual reality, and online interaction. It allows learners and teachers to access unlimited resources and opportunities of advanced learning. This study aims to design and develop a digital textbook for the enhancement of teaching and learning English as a foreign language. In order to achieve the purpose, design requirements and strategies for the digital textbook were specified based on the previous studies and cases, and then applied to the development of the English digital textbook. A pilot test was conducted to test the usability of the digital textbook.

Methods

Rapid prototyping methodologies and basic instructional design steps: analysis, design, development and evaluation were employed to develop the English digital textbook. The design considerations were specified as follows: First, various scaffolds are provided to support both internal learning processes and external learning activities. Based on Rose and Meyer (2002) the internal attributes of learning consist of recognition, strategy use and affection, and the external learning activities are divided into representation and expression. Second, strategies to support each process and activity were designed in the basis of the previous psychological theories and studies. Third, differentiated learning tasks are provided to allow learners learning with appropriate learning difficulties. Fourth, the integration of online interactions and offline activities with teachers' guidance are designed to offer a synergy effect in classroom-based learning. Finally, tablet PC was selected as a delivery device. Tablet PC is a portable computer with digital stylus. The tablet PC is equipped with a large amount of memory capacity which can store massive data and wireless networks to easily access internet services in and outside of schools. The device will allow learners to involve in personalized learning processes and socially engaged contexts.

Ten seventh graders participated in the pilot test of the digital textbook. Participants used computers individually in a computer lab during the pilot test. Each computer was equipped with the English digital textbook and Morae software which allows capturing users' screens during their actual use, and recording users' facial and bodily expressions with externally equipped webcams and recording headsets in less obtrusive contexts (TechSmith, 2010). Each students spent about 30~40 minutes for learning about a selected unit. The follow-up interviews were conducted with individual students by researchers for about 30 minutes. The recorded videos and the marks were used to help the students to recall their actions and mental processes during learning with the digital textbook. All data from pilot test were analyzed to test how the design strategies work for supporting learners' representation and expression in learning English with the digital textbook.

Results

The English digital textbook was developed in a Window OS environment with Flash applications and web-programming in this study. It includes 12 lessons, each of which consists of 8 class-hours in middle school English. The learning processes within a lesson in the digital textbook are divided into 11 sections: (1) 'Warm up' that helps learners recall prior knowledge and preview the main topics of a lesson, (2) 'Listen & Speak' that allows them to enhance listening and speaking skills in English, (3) 'Tune in' that provides more chances to practice what they have already learned through the 'Listen & Speak' section, (4) 'Focus on Sounds' that explains the pronunciation and intonation of key expressions, (5) 'Read & Do' that develops reading skills in English, (6) 'Build up' where learners can refine language forms learned through the lesson, (7) 'Grammar up' that highlights major grammar points in the lesson, (8) 'Think & Write' where learners can learn English writing skills, (9) 'Let's Communicate' that allows learners to have free-talking practice with their peers, (10) 'Let's Check' that assesses learning outcomes, (11) 'Check up' that facilitate learners' reflection on their achievement. The results of the pilot test are summarized according to the domains of external learning activities in design requirements of the English digital textbook.

LIFELONG LEARNING AND DISTANCE EDUCATION – SUSTAINABILITY STRATEGIES OR SURVIVAL TECHNIQUES?

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A survey made by the Budapest Business School has produced some very interesting results: it has turned out that students and alumni are aware of the importance of lifelong learning. Every other graduating student plans to continue their studies in the foreseeable future; and one out of four students would like to take at least a few courses abroad.

Knowledge is expanding at an exponential rate, and consequently people need to obtain new information continuously, thus learning has become a never ending process in people's lives. This was not always the case: there were times when people seemed to think that once you have earned a degree you are entitled to have a decent, well-paid and secure job which would guarantee a successful career up to the time you decide to retire. Science used to develop a much slower rate than today: what you learned as a young man was enough for a lifetime.

Today this pattern of life has completely changed. However much you have achieved earlier, you cannot rest on your laurels. You'll have to move on and improve and update your knowledge. That is the reason why various forms of distance learning are in most cases success stories. And that is why distance learning seems to be a flagrant example of sustainability. In this paper the authors want to present how they think educational programs can be sustained; what could be learnt from the survey mentioned above; what strategies are applied in the the College of Finance and Accountancy of BBS in restructuring its Distance Education Centre.

A distinction should be made between sustainability strategies and survival techniques. Sustainability should be a major endeavour of any project or organisation and it must be based on continuous development, good management (including quality management) with a view to customers, clients, or students – whoever the beneficiaries of the service are. On the other hand, survival is the concern of an organisation in difficulty or in an emergency. Sustainability can be ensured by focusing on constant development and *growth*. No organisation, project or program can survive by trying to merely subsist or stay afloat; in our competitive age it would mean falling behind the race. Growth does not only mean increased production, output, or student enrolment. Growth can also be achieved by enhancing quality, which is also a crucial factor that can influence the future of an organisation. Constant innovation is another key word for sustainability. The environment is changing around us, and we have to adapt quickly to new circumstances. The services that we offer should be focussed on the users of the services and not the desires of the service providers. Educational programs must also be student-centred. Networking, i.e. developing and maintaining cooperation with other organisations is also an important element of sustainability, since it assures quality, gives opportunities for expansion, gives an impetus to innovativeness, by pooling intellectual and/or economic resources.

Survival techniques are adopted in emergencies. They are typically characterised by downsizing instead of expansion, scaling down rather than increasing output, austerity plans, tough financial restrictions, layoffs, all kinds of unpleasant measures to stave off the imminent disaster of failure. These measures are, however, provisional and temporary lasting as long as the critical situation – if the organisation or project survives at all. In contrast, sustainability strategies are adopted as long-term plans for development.

ECO-RESOURCES: A NEW METAPHOR FOR OPEN EDUCATIONAL RESOURCES

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The new challenges of the information society are leading to new requirements for teachers' professional competences: they have to interact with increasing, globalized and complex knowledge. Moreover, they have to face students that have grown up digital.

To promote a new way of learning and in particular the ability to learn in relation with the others, it is important to connect all the environments where the learning takes place (formal, non formal and informal). In addition to this, it is also important to develop connections between different teachers and disciplines, building an integrated curriculum, in order to create an educational practice that is sustainable, where the result obtained in a particular area leads to significant results also in others areas. For all these reasons the teachers should develop new skills: creativity, ability to survey, and ability to learn in relation with peers, to be able to manage their knowledge as a process. Internet seems to be a good training environment to develop these skills, and OER (Open Educational Resources) important bricks for building new educational paths, that support the implementation of specific learning situations.

The striking development of the Web has helped to create a stronger relation between events, processes and knowledge, regardless their location. In the last years, the increasing simplification of web interfaces, have led to a massive participation not only in browsing and downloading contents offered freely and openly online, but also in becoming active participants in the process of contents creation. Nevertheless, there are still barriers that educators have to face in order to share and reuse resources to go beyond access. It is not only important to train teachers in sharing their resources (small pieces of content produced every day for their teaching activities), describing them with metadata to facilitate their reuse/recycle in similar or different contexts (eco-resources), but also support communities of interest around certain subjects by providing, alongside the content, mechanisms that support teachers' interactions, namely, adding comments on how best to use some contents.

According with this idea, the Open Educational Resources project UNIVIRTUAL (OER-UNIVIRTUAL)¹, developed by CIRDFEA, aims at interweaving a repository of open educational resources with flexible learning environments that supports both formal and informal learning, enacting all the necessary elements in order to implement a sustainable professional learning environment: good instructional design, user-friendly learning environments, resources/activities for informal learning, recognition and accreditation of learning experiences.

Within this approach, the attempt is to stimulate teachers to share their resources and practices in a sustainable manner, by way of awareness of an ecology of resources that support effective professional development as well as effective pedagogical practices.

¹ To learn more about this project see: <http://www.univirtual.it/drupal/en/node/322>

RAISING AWARENESS ON SUSTAINABLE LEARNING – AN ONLINE TEACHER TRAINING PROGRAMME TO SUPPORT THE DEVELOPMENT OF KEY COMPETENCES

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The key competences: from the policy documents to the classroom practice

In 2010, the Institute for Educational Sciences in Bucharest implemented a 10 week online teacher training pilot programme focused on a methodological approach to the key competences development in the actual class. The participants were mother tongue, foreign languages, history, social studies, science and primary education teachers from four out of the forty counties in Romania. Our aim was to overcome the rhetoric of the policy statements that connect the Romanian intended curriculum to the European recommendation on key competences for lifelong learning and to develop a pragmatic perspective to actually innovate the specific didactics. In order to design the training curriculum we started from a set of questions that address the deep meaning of each key competence in the context of a specific school subject: *What is the meaning of mother tongue communication in the subject X? What about that of communication in foreign languages? What is the impact of mathematical competence and of basic competences in science and technology for subject X? Is the digital competence relevant? What about social and civic competences – are they relevant for the teaching of subject X? How do students actually learn in subject X? What does entrepreneurship mean in the learning of subject X? How does subject X reflect the cultural awareness and expression?*

In the perspective of this interrogative frame, the objectives of our training programme are defined as follows:

- Identify the knowledge, skills and attitudes that are described in the European recommendation and which can be developed or could support the acquisition within a school subject
- Reorganise the methodological approach at the level of a school subject so that the key competences could be developed
- Participate in online communities who share ideas and experiences about the development of the key competences
- Manifest a reflective attitude regarding their own learning

Highlights from the online course for social studies teachers

The online community of the social studies teachers were challenged to explore opportunities that enhance a fruitful combination between the curricular acquisition and the development of the key competences. In this perspective we identified and tested various methods that promote the development of the key competences via social studies with long term benefits for the entire life. We looked for an effective design of the students learning: at the intersection of the intended curriculum, the route that is chosen by the students and the provision for the key competences. We exchanged views on how to involve students in their own learning, such as: interactive construction of knowledge by means of specific strategies; learning participation by participation /vs/ learning about participation; project work; ICT as a medium for learning in a constructivist approach /vs/ ICT as a mere tool for instruction.

The digital resources that were provided on the eLearning platform, the interaction on the forum as well as the reflections that were encouraged to be uploaded in the personal online portfolios supported the participants to become aware that teaching can be meaningfully adapted to social needs, that key competences can actually be developed in the class and that computer based learning is beneficial to individual development and utterly attractive for communication and study. The participants experienced themselves the acquisition of the key competences in a methodological approach and were able to design their own learning examples which they implemented in their classes. Thus, the online community expanded with the uploads of new resources that were designed, implemented and later discussed by the teachers. Our conclusion is that the participants learned new methodology in an innovative methodological perspective, and learned online participation by participation.

MEETING THE OLD AND NEW ECOSYSTEMS

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Introduction

Web 2.0 is called the new ecosystem. However we want a sustainable Europe where the real ecosystems, forests, wetlands and coasts, are protected and benefit from the existence of the new ecosystems.

This paper argues that while Europe is uniting over various financial and cultural aspects, nature conservation values are still valued and managed based on national approach. An often cited phrase says: nature knows no border. Therefore there is a need for a learning module for the managers of natural resources throughout Europe. Such a module would help to create a) common interpretation of the Birds and Habitat Directives and b) a platform of N2000 site managers.

However there are over 40 000 areas in Europe which are protected one way or another. Therefore PAN Parks Foundation suggests working out first an example of a learning module for N2000 sites which are common in their management practice. This learning module would focus on wilderness protected areas.

PAN Parks Foundation with its network of certified wilderness areas can provide the network of areas for testing the learning module.

PAN Parks Foundation

PAN Parks, the European wilderness protection organisation, is working to create a world where the great wilderness areas of Europe are protected and enjoyed as sanctuaries of nature: where the natural systems of animals and plants are safe to thrive; where people appreciate the pleasures offered by wilderness with the respect it deserves; and where our knowledge and understanding is enhanced for the benefit of nature and humanity alike.

Defining the problem

The problem is that while the network of Certified PAN Parks uses the same non-intervention management approach that field managers have very little chance to learn a joint approach. The experience exchange is minimal therefore a lot of resources are wasted.

PAN Parks Foundation suggests creating an e-learning platform for managers of natural resources in case of similar management approach (in this case non-intervention management)

Most of the protected areas, especially the ones with wilderness characters are located in economically depressed regions. There is high unemployment and low level of service in most of these areas. The managers of such areas have little chance to join any learning platform, while their lifelong education is important not only for better management of natural resources, but for the regions itself (as they are typically part of the higher educated citizens of these depressed region).

Distance/e-learning is a perfect way to bring these managers to a common education platform and offer them opportunity to a) exchange experience, b) develop a commonly agreed interpretation of European directives.

ISSUES EMERGING FROM THE GETA PROJECT IN ICELAND: EDUCATIONAL ACTION FOR SUSTAINABLE DEVELOPMENT

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From 2007-2010 a group of researchers in Iceland carried out the GETA project designed to explore ways in which education for sustainable development could be strengthened in schools and the school system. The goal of the project was to strengthen multi-disciplinary research and nurture an integrated approach to educating for sustainable development. Its primary aim was to investigate ways in which education for sustainable development can be strengthened in schools. The purpose of this poster presentation is to identify some issues emerging from the project which have implications for the way in which partnerships are developed and maintained. Four pre-schools and four compulsory schools took part in a year-long course and worked on action research projects supported by advisers of the research team. The schools agreed to monitoring and self-evaluation activities. The actual projects were developed by the schools themselves and varied in range, scale and topic. Working in the spirit of sustainable development requires “a frame of mind” bringing together a multi-disciplinary range of knowledge, skills and competences. In the GETA project we believed that educational action for sustainable development could be based on three principles – *knowledge*, *respect* and *responsibility*. A robust approach to working in the field of education for sustainable development has developed around the notion of *action competences* (Jensen and Schnack, 1997). The *action competence* learning process provides a framework for individual or collective action. Issues selected for action should have meaning and relevance for learners and emerge from contexts that being studied. Learners engage in critical and creative thinking to address improvements. They identify enabling factors and barrier factors and develop a plan of action. An evaluation of the outcomes by students may reveal social or environmental factors that need to be reconsidered.

Issues emerging from the GETA project

- The five learning pillars proposed by UNESCO could help those working in ESD to focus more on what learners do in ESD activities and not just on what teachers do. Three pillars – *learning to be*, *learning to live together* and *learning to transform oneself and society* – are fundamental to releasing the potential of ESD. ESD is not just outdoor teaching or the protection of the environment and ways to encourage understanding and action could be facilitated with more of an emphasis on the notion of *action competence*. In particular, if the advisers themselves are aware of the complexity of the process and their work with teachers provides a model, then teachers may be more willing to work with learners in new ways.
- There are difficulties in getting schools to collaborate with each other. Similarly, collaboration among teachers within a school can also be complex. The development of such learning communities is influenced by the project leader (often the school principal) and the way in which the school day and the building is organized. The role of the principal seems to be crucial in development work. When they take part in projects or a development process it is more likely to succeed. This may require a ‘paradigm shift’ within schools.
- Self-evaluation and determining the next feasible step in school development needs analytical tools, such as that developed by Rogan and Grayson (2003), and the process could be facilitated by advice and support, perhaps from a mentor or adviser. Grouping factors into extrinsic and intrinsic could help teachers and advisers focus on what could be a feasible next step. Teachers could analyze their environment and understand what could be changed, what they can change themselves and what is out-of-reach. Other analytical tools, such as the curriculum key developed by some of the research team or quality statements, can help teachers and schools to break their work into recognizable manageable tasks.
- The adviser-teacher relationship has proved to be more problematic than we thought initially. In retrospect the GETA team underestimated the skills needed by advisers and could have addressed the role of the adviser more directly and provided more back-up for them within an action research framework. Teachers value support but also need to understand what is expected in a mentor/coach relationship. In-service provision should incorporate more on-site support.

The project was carried out by staff from a group of universities and schools. The university participants were from the University of Iceland and the University of Akureyri, both staff and graduate students. The project received funding for three years from the Environment and Energy Research Fund of Reykjavík Energy. Funding for the transcription of some of the interviews was provided by the Research Fund at the University of Akureyri. In many cases the schools had received development grants for their school-based projects from national school development funds.

EDUCATING ENGINEERS FOR A SUSTAINABLE SOCIETY – GREEN CHALLENGE AT THE TECHNICAL UNIVERSITY OF DENMARK

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Setting the scene

In 2008, the Technical University of Denmark (DTU) established the program DTU Climate Change Technologies. The purpose was to develop and strengthen DTU's research contribution to solving the climate challenge during the next decades, hence ensuring that DTU will contribute significantly to developing and implementing new solutions related to climate change.

In order to enhance focus on the role of future engineers in solving the climate challenge and to incorporate sustainability in all study programs at the university DTU launched a study conference, Green Challenge (GRØN DYST), open for all students at DTU addressing these matters.

Green Challenge in a nutshell

The 1st study conference was held in June 2010. 220 students and 93 projects had taken up the gauntlet and registered for GRØN DYST at one of the four different levels. The students presented their projects in one of three different categories: poster session, laptop session or free style session. The many keen attendees had plenty of opportunities to learn about the students' projects and results. In some fortunate cases the students were offered project-based employment at a company on the spot.

During the afternoon of the conference day the projects were evaluated by panels of judges consisting of representatives from the Danish parliament and the corporate world as well as from teachers and students. Each project was evaluated on its technological applicability, innovativeness, pedagogic potential and on the way it was presented and communicated. The aspects of sustainability, climate technology, and the environment incorporated in the project were also evaluated. The diversity span of the projects reached from a group of first year students presenting a project on "iPhone Application to Support Commuters" via bachelor projects on "Black Silicon Solar Cells" and "A Virtual Chemistry Lab" to master theses on "Redesign of Festival Pavilion" and "Wind Sensing Doppler LIDAR, Improving Wind Turbines".

The Danish Minister for Climate and Energy presented prizes at the official award ceremony. The first prize was 4,000 € for the best course work at bachelor and master levels and 1,000 € for best master thesis or bachelor project.

Green Challenge 2012

The study conference takes place every second year, which gives all students the opportunity to participate at least once during their bachelor- or master programme. Thus, the next Green Challenge Study Conference is to be held in June 2012. In order to participate, sustainability, climate technology, or the environment must be incorporated in the project that is presented, and the project must be developed as an integrated part of the students' study programme at DTU during the period of autumn 2010 and spring 2012.

To keep attention on the issues addressed in connection with Green Challenge, a number of supplementary activities during the biannual period are planned, including a workshop, "Green Carrere" where representatives from the industry will explain about the need for a green profile, seminars for teachers dealing with aspects of the education of engineers for a sustainable society, and lectures given for all students by prominent guest speakers.

AN EXPERIENCE OF ORGANIZATION OF A COURSE OF 3RD CYCLE ON SOCIAL SUSTAINABILITY AND DEVELOPMENT

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The increasing interest of the Academy in conducting fundamental and applied research in the area of sustainability, thus allowing the enlightenment of the complex field of knowledge, is reflected by the remarkable number of disciplinary and interdisciplinary academic works. The 3rd Cycle Degree currently offered at Universidade Aberta (UAb) in Social Sustainability and Development (SSD) aims at training experts with suitable tools that facilitate the integrated development of social, environmental and economic strategies within a multidisciplinary and cross-cutting framework expected to grow at national, European and global levels. This program in SSD introduces a multidimensional nature and thus requires new study approaches, that from the scientific point of view, can be characterized in terms of a stronger interaction between science and society in what concerns both the production and the evolution of the scientific knowledge as well as its learning. From the pedagogical point of view, UAb's pedagogical model, supported by an online distance education methodology, enables to reach the pedagogical constructivist framework in an easier way when compared to the presence-based model, by creating cyberspace communities in which the learning processes acquire an important social dimension.

Reorienting existing education at all levels to address sustainable development is very urgent and necessary, so that all citizens, young or adult could be educated to learn the knowledge, skills, perspectives and values of sustainability and to assume responsibility for creating a sustainable future and lifestyle.

The current proposal, presented and approved by the National Accreditation Agency, was based on the following strategic assumptions: i) This doctoral program intends first and foremost to serve the Academy, the country and the Portuguese-speaking community, without any hegemonic disciplinary, departmental or institutional goals; ii) From the scientific point of view, it can be assumed either as an autonomous field or as an interdisciplinary scientific field, mainly related to the Environmental Sciences and/or Social and Economical Sciences. The competences to be acquired by the students were defined, in line with the curriculum development. At the end of the program the students are expected to have developed competences i) to critically reflect on SSD issues, well grounded on current multidisciplinary theories; ii) to formulate, based on validated theories and methodologies, critical analyses on specific situations concerning SSD; iii) to apply research results in a socially intervening perspective, able to lead human activities towards a sustainability framework; iv) to develop, either autonomously or within a team, basic and applied original research in this area. In methodological terms, the doctorate program follows UAb Pedagogical Model, with the necessary adjustments to a 3rd cycle program.

The development of the proposed degree has gone through several stages and involved different types of partnerships and dialogues. However, the purpose of this work is to analyze the public that has expressed interest in applying for this program based not only on the subjects or matters that will be dealt with but also the fact that it is taught through a distance learning methodology, through a virtual learning environment using an e-learning platform. From the characterization of the enrolments we could identify some trends that we consider important to highlight mainly because they might require some adjustments in the contents of various seminars. First it should be noted that less than 25% of students come from a scientific background which may suggest that sustainability is still a concept not commonly approached from the scientific point of view. Future editions should aim at an increase in this number. Secondly it was found that slightly less than half of the candidates are higher education teachers, which could bring to discussion the needs of a very specific audience. But on the other hand about 57% of candidates are from different professional areas, a high number that most probably will increase in coming years. Consequently an indication that can also be drawn from the numbers is that the concept of sustainable development is not only very broad but also expanding as the themes are multidimensional, inter and transdisciplinary, requiring innovative approaches and partnerships. Furthermore a comparison between the target public that was initially defined (while preparing the proposal) and the individuals that in reality applied for the 1st edition of the doctorate course in SSD is carried out. By identifying the academic and professional background of the candidates we should be able to develop an integrated and multidisciplinary approach and work towards their expectations.

¹ & Centro de Geologia da Universidade do Porto – CGUP, Porto, Portugal

² & Centro de Química Estrutural, IST-UTL, Lisboa, Portugal

GO GREEN: A PERSONALISED GREEN TRAINING CENTER FOR EUROPEAN SMEs

Dimitra Voulgaridou, Menelaos Ioannidis, Ioanna Ioannidou, Allweb Solutions S.A., Evgenia Tzanetopoulou, Chamber of Arcadia, Greece

General description

During the last decades the movement towards environmentally responsible enterprises is growing worldwide and the Lisbon Agenda clearly proposes that innovation and development should go hand in hand with the protection of the environment. Many studies have shown that the adoption of “greener practices” and the design of environmental friendly processes, products and services contribute to enterprise competitiveness in many ways, including more business opportunities, cost reduction, improvement of enterprise’s image, marketing advantage and the creation of healthy workplaces. It is also with no doubt that when SMEs are attempting to initiate such Green Business activities, an important set of skills and competences in the field is required. Based on the rationale that a “green business is a smart business”, the Go Green project (www.gogreenproject.eu) focuses on the delivery of a personalized “Green Training Programme”, aiming to improve the knowledge and the skills of entrepreneurs and practitioners related to the effective implementation of Green Entrepreneurship practices in SMEs. The project will draw on the results of a transnational training needs survey in order to identify the existing eco-awareness and knowledge gap of the target group. As a result, a GoGreen Training Programme will be developed and will be pilot tested in all participating countries. The project will develop (in all partners’ languages, plus English):

- Training material, suitable for blended learning activities
- An integrated knowledge base, including an e-learning platform and other online supporting tools for provision of personalized training
- An interactive blended learning course

Special GoGreen Bureaus will be established inside the participating chambers for the exploitation and sustainability of the projects outputs. The project will also build a practitioner network of green entrepreneurship educators who will be fully trained for the new material. A wide range of dissemination activities are also envisaged. The project is designed to address the needs and involve SMEs owners and senior managers, procurement and HR managers, Green Business Consultants, as well as VET professionals, public authorities, policy makers and practitioners in the field. The main objectives are:

- To raise environmental awareness of entrepreneurs and managers
- To develop an audit tool for assessing generic and context specific training gaps and to identify and analyze the training needs of the target group in the involved countries related to the design and implementation of innovative environmental friendly processes, products and services.
- To use survey results to perform the first international comparative study of the nature and degree of financial illiteracy and the associated consumers’ training needs.
- To produce an online integrated platform to fully support SMEs to address environmental issues affecting their business.
- To develop ICT tools and training material on the fields essential for the development of environmental responsible business activities
- To train trainers from the partner countries to administer these modules
- To provide personalized sustainability and environmental roadmap that acts as an educational engine and resource guide in the field.
- To create Green Business Bureaus inside the chambers for the conduct of the GoGreen Training Programme and further exploitation of results
- To establish a Certification Scheme for SMEs that participate in the training programme and improve their green business operations (‘Going Greener Excellency Badge’).

LEARNING OUTCOMES AND THE EUROPEAN QUALIFICATIONS FRAMEWORK IN HIGHER EDUCATION – AWARENESS AND ATTITUDES OF STAKEHOLDERS ACROSS DIFFERENT EUROPEAN COUNTRIES

Daniela Proli, SCIENTER, Italy, Begona Arenas Romero, SCIENTER, Spain, Thomas Kretschmer, Innovation in Learning Institute (ILI), Germany

The Framework for Qualifications of the European Higher Education Area (QF-EHEA) started in 1999 with the Bologna declaration, whereas the development of the European Qualifications Framework EQF started in 2005 (including the creation of National Qualifications Frameworks referring to the EQF). The two frameworks clearly have similarities and overlapping areas. The Learning Outcomes (LO) approach may serve as bridge is to avoid the development of two isolated frameworks.

The research project UNILO thus intends to explore the Learning Outcomes approach in the frame of EQF/EHEA contributing to its full understanding and application by promoting the active involvement of the Career services of the Universities helping the huge target group of European University students and holders of professional qualifications to better understand its potential in a clear and practical way.

The project outcomes have been designed following a conceptual framework in which the objectives correspond to the activities to develop and to produce – amongst others – the following results:

- Survey report to better define the state of the art in LO implementation in the European Higher Education Area (EHEA):
 - The survey showed that the majority of the respondents have a very limited knowledge about the Bologna Process or the Europeans Qualifications Framework. Most of them have never heard of these terms.
 - Only about 10% of the respondents feel familiar with the topics as Bologna Process, EQF, EHEA.
 - Concerning the status of implementation the survey demonstrated, that the LO approach in Higher Education is performed to a certain or some extent, e.g. by seminars or information days on LOs or written information regarding the EQF and NQF provided by the universities.
 - One part of the survey consisted of questions regarding the personal opinions of the participants. In this part an interest in the LO approach could be identified, that is, they mostly agreed with statements regarding the advantages of the approach. For example, they consider the EQF and NQF to be helpful for making Europe more competitive. However, the LOs are almost unknown amongst universities' staff. So there is still a need for the promotion and further support of the LO approach.
 - Finally there exists a huge diversity with respect to awareness about LOs and EQF/NQF. Although most HE institutions show some activity to promote the approach, there are still many HE professionals that are not aware about it. Those who have experience with the approach have a rather positive attitude towards LOs and EQF.
- Report on the integration seminars carried out to identify criticalities and bottlenecks in the implementation process, containing recommendations for policy, practice and research.

The poster will summarise the results of the online survey addressing university professionals and students in Europe and thus it will present a comprehensive picture of the awareness for the concepts mentioned above; in addition, the outcomes of the national seminars with experts will be presented.

VIRQUAL: DEVELOPING A MODEL FOR VIRTUAL MOBILITY

Rita Falcao, Universidade do Porto, Portugal

Introduction

The project VIRQUAL is now in its final year. After two years of research and model design, VIRQUAL is now prepared to test a model for implementing Virtual Mobility. This poster will present a general view of the model and of the testing approach, hoping to reach an interested audience. The model has three components, each one developed by one of the taskforces of the project, described below.

Task 1 – A Guide for Virtual Mobility

This guide intends to provide a general introduction to the topic of virtual mobility (VM) in Europe, contributing to Higher and Continuing Education Institutions which offer e-Learning courses to implement Virtual Mobility in the framework of the European Higher Education Area. The main aim is to help establishing a common understanding on possible organizational, pedagogical and technical approaches to the implementation of Virtual Mobility within the European Qualification Framework.

It intends to be a step-by-step guide that may be used by students, course developers or Institutions, to help them to achieve Virtual Mobility in a diversity of scenarios. When referring to Virtual Mobility in the context of the European Qualification Framework, we are aiming at extending the current Erasmus experience by intensive use of ICT. Virtual Mobility lacks several components of the physical mobility, of course, but can offer other dimensions, including different learning pathways, creation of virtual communities, collaborative projects, and international cooperation with a lower investment.

Task 2 – e-Learning and EQF

Task 2 has collected and analysed comprehensive data of the EQF implementation in Europe, compiling 32 country reports on EQF/NQF implementation, at levels 5 to 8. The report also includes the situation of e-learning in what concerns legislation and practice in each of the 32 countries.

For the model, the information will be presented in a format that allows for quick overview of the situation in a given country or comparison between different countries. This tool intends to contribute to the identification of potential obstacles and facilitators in Virtual Mobility scenarios that may include one or more countries. The information gathered constitutes the legal framework, at National and European level, that should be considered in Virtual Mobility situations.

Task 3 – A Global Architecture of Intended Learning Outcomes

Task 3 developed tools and strategies to define, describe, write and assess Learning Outcomes. These tools help teachers and course developers to define the individual Learning Outcomes but that also to relate them to the correspondent modules and levels of the EQF Framework. The tool consists of a web-database, structured accordingly to the EQF levels and types of LOs and that uses other classification systems like ISCED code and ERASMUS subject code for better definition of LOs. The development of this tool was complex and included several intermediate tests with real users to achieve a version that is complete but not over-descriptive.

The main idea behind this work is that clear LOs are essential to achieve academic mobility, physical or virtual, to achieve transparency in Education and recognition. However, writing high quality LOs is not an easy task, not even for experienced teachers. This task intends to provide tools that facilitate the process but also, wants to provide examples, best practices that will guide other teachers in the process of defining, describing and assessing LOs. These examples as well as the templates will be compiled in the repository www.learning-outcome.net. This part of the model plays a crucial role in the achievement of Virtual Mobility. It defines what students are intended to learn and this should be fundamental for an informed decision when choosing a course to attend. Also, a clear statement of the Intended Learning Outcomes will provide the basis for the definition of assessment strategies, contributing for the whole education process.

MANDATORY USE OF TESTS IN THE BASIC COMPETENCE IN WORKING LIFE PROGRAMME?

Ingrid Radtke, Marit Gunneng, Margrethe Marstrøm Svensrud, Vox – Norwegian Agency for Lifelong Learning, Norway

The poster aims to present the current discussion about the mandatory use of digital tests in basic skills courses for adult learners in The Basic Competence in Working Life Programme (BCWL). Vox – Norwegian Agency for Lifelong Learning – is owned by the Ministry of Education and Research in Norway. One of Vox' main areas of activity is its work to improve adults' basic skills, including reading, writing, functional numeracy and digital competencies. The BCWL Programme is a funding programme aimed at developing basic skills in working life. Public and private companies together with learning providers can apply for funding. Vox has the administrative responsibility and also develops various materials to support the provision including a Framework for Basic Skills for Adults. The Framework includes competence goals defining the proficiency of the given basic skills which adults are expected to have at a given level – or the intended learning outcomes. Thus, the Framework for Basic Skills for Adults establishes national standards for reading and writing, numeracy, digital competence and oral communication for adults in Norway.

To facilitate adequate learning provision and the measuring of learning outcomes, international literacy¹ and numeracy² tests have been translated and adapted and a test of digital competence created. Teachers and trainers planning to use these tests have to attend special courses in order to be recognised as certified examiners. In 2009, Vox introduced a testing regime for diagnostic and summative purposes in order to measure learning outcomes in BCWL-courses. In addition the tests should help tailor the teaching and the courses to the learners' needs. The main concern though was that the use of tests might lower the motivation for participation and learning in weak learners and immigrants with low language skills.

We therefore asked test supervisors in a survey about the use and usability of the three tests for diagnostic and summative purposes made available to them by Vox. Their answers differ for the three tests, but in general, they show that there seems to be a lot of arguments against making the tests mandatory for The Basic Competence in Working Life Programme (BCWL). Respondents agree to a great extent on the usability of the tests for diagnostic purposes, but also on the fact that the tests are only to a small extent suitable for weak learners and it is questionable whether they are suitable for immigrants even on a level about B1. With respect to the teaching and learning process, including summative purpose, the tests seem to fit only to some extent.

The conclusion is therefore that given the diversity in adult learners' groups and the relatively low level, teachers should be free to decide which form of assessment is most suitable for diagnostic purposes at the beginning of the courses, and whether a test, if any, should be used for summative purposes for adults with low basic skills.

The whole process of assessment for learning requires a careful pedagogical approach to training, the participant and the assessment process itself. Assessment tools should be seen in the context of the learning progress of each participant. This process is more resource intensive than a traditional scheme, but allows for a greater goal achievement and better motivation of the participants.

¹ The PDQ Profile Series, developed by ETS. For more info visit http://www.ets.org/literacy/about/content/pdq_profile_content

² Developed by Cito. For more info visit <http://www.cito.nl/>

FROM "E-SENIOR" MAGAZINE AND "E-SENIOR IN ACTION" TO "LEARN WITH GRANDMA"

Anna Grabowska, Gdansk University of Technology, PRO-MED sp. z o. o. Poland

About "e-senior" magazine online in MagazineFactory

The idea of "e-senior" magazine was born in 2008 during EDEN Conference in Lisbon (the workshop "Collaborative Learning and User Generated Content Creation with the Multilingual MagazineFactory", Christian Komonen).

Several articles about Grundtvig partnership projects were published in "e-senior" magazine (http://magazinefactory.edu.fi/magazines/e_senior/).

About "e-senior in action" (Seniors in action programme, September 2009 – April 2010)

The "e-senior in action" project had an aim to integrate and activate the members of Senior's Club at Gdansk University of Technology (GUT). Seniors from GUT have been taking part in "Meetings with computers" with elements of e-learning, Face to Face and open-air activities. The new skills gathered by GUT seniors have been verified during Grundtvig Partnership projects' meetings in Poland and abroad.

About "Learn with Grandma" (Active Citizens programme, September 2010 – March 2012)

The project "Learn with Grandma" is based on 2 years experience gathered by Welsh not for profit company – Learn with Grandma Cyf created by Valerie Wood-Gaiger and Carroll Nunnerley from West Wales. The main objectives of the project are as follows: promoting intergenerational learning through voluntary work, addressing local needs, encouraging the young to teach older people how to use technology and to speak foreign language, organize local event "Learn with grandma", create local and internet support networks for the families.

The screenshot shows a Moodle-style web page for 'ACTIVE CITIZENS'. The main content area lists several items:

- Rozmawiamy po angielsku (Let's speak English)
- Forum po polsku (Forum in Polish)
- LLLab - spotkanie w Koszycach (Meeting in Kosice) 14-17/04/2011
- LLLab - co to jest (LLLab - what is all about)
- EuBIA - spotkanie w Hamburgu, 3-5/05/2010
- Connecting +55 - spotkanie w Skurup, 16-20/06/2010
- Czat (Chat)
- Oceń styczniowe zajęcia (Evaluate meetings in January 2010)
- Multimedia dla seniorów? (Multimedia for seniors?)
- Linki (Links)
- Wyniki sondy "Seniorzy w akcji 2011"

The 'Kategorie kursów' (Course categories) table is as follows:

Kategorie kursów	Count
Active Citizens - Learn with Grandma	1
Dla każdego (For everybody)	2
Dla e-seniorów (For e-seniors)	7
Warsztaty LLLab (Workshops LLLab)	9
Projekty (Projects)	14
Konferencje (Conferences)	10
Promocja (Promotion & Dissemination)	1

The right sidebar shows a calendar for April 2011 with the following dates highlighted: 3, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30.

Figure 1 e-senior.eu in action and Active Citizens web page (<http://utw.moodle.pl/>)

NEW FRONTIERS IN THE DIGITAL AGE: LEARNING EVERYWHERE

Gea Miguel, Rosana Montes-Soldado, University of Granada, Spain

The Digital Age

Changes are produced in the ways of communications and relationships for citizens using ICT. This is not an easy change; it is a revolutionary understanding of our world. Learning and training is not an exception and education institutions had to adapt to this trend. Some factors are influencing these changes so fast:

- *The nomadic society.* Mobility is a key issue in our society. People spend a lot of time working and travelling from one place to another. Technology allows us create new models of communication and collaboration, and that nomadic time is spent in technology-aware places.
- *Our digital identity.* Nowadays, we have a huge amount of login and passwords for regular activities. These activities also represent some kind of virtual traces, tracking our activities and intentions on this parallel digital world. The persistence of our activities are encoded in TCP/IP packets, stored, used and recommended to others. The identity is also represented in new dimensions such as reputation, trust, confidence or popularity.
- *The knowledge provider.* Wise and knowledge are also acquainted with Higher Education Institutions. But nowadays, these institutions must adapt their models of learning to new channels and modes of learning. Thus, informal and context aware learning are gaining more attention and interest due to their flexibility, adaptation and easy updating.

The New Digital Rules

Nowadays, emerging codes are influencing the way in which information and users interact. Changes are pushing the Net from the unregulable space it was, to the perfectly regulable space. These norms such as Intellectual Property Rights (IPR), access control, software licenses, Digital Right Management (DMR), and patents regulation are mechanisms to control and regulate the market and the business model in the digital life. In contrast, openness is an emerging trend that gave birth to the Internet. The GNU project great success comes by allowing the free use of Informatics for all. New forms of sharing contents are also created the Creative Commons License or sharing contents using peer to peer networking. It is interesting to observe how regulations are building constantly according the needs of the online community, creating and promoting their own tools, contents and methods, whatever how business models are promoting.

Openness has arrived also to the University field in the form of OER (Open Educational Resources) which implies the redefinition of the missions of the university. It is clear that research and teaching are the two most important goals for institutions. However, researching was traditionally focuses to publishing (on journals and refereed books) whereas teaching was always more restricted to proprietary courses belonging to the institutions. The role of Universities to accredit competencies is not only based on traditional degrees. Trends go towards a dramatic change for *life-long learning* accreditation and even considering *learning contracts* instead of the conventional degree.

Conclusions and Future Trends

The technology enhances new models of knowledge sharing, but in all these experiences, the (digital) community always gives the added value to such models, supporting contents, dissemination and sustainability. Higher Education Institutions are adapting their structures to these new models of sharing, and one of the most important activities is the accreditation and assessment. Validation of non-formal and informal learning is the relevant activity that institutions should take into account according to these trends, and now we are starting with a promising project called OER.Test to profound in these aspect and the implications on Higher Education Institutions. This work has been funded with support of the Lifelong Learning Programme of the European Commission, (EACEA) project agreement number 2010 – 3887-Virtual Campuses (OER-TEST). This paper reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

OCCUPATIONS ON VERGE OF EXTINCTION AND NOVEL PRODUCTS: AN EDUCATIONAL PROJECT IN THE CONTEXT OF SUSTAINABLE DEVELOPMENT

Mary Kampouroupoulou-Savaidou, Costas Tsolakidis, Persa Fokiali, University of the Aegean, Greece

The purpose of this work is to investigate to what extent old occupations and activities, that either have disappeared or still exist at the margin of the economy, can be approached in an experiential, collaborative learning process as sources of inspiration for novel products. In particular, the work examines theoretically traditional occupations within the context of sustainable development and proceeds by describing an educational project in which participants were asked to use elements related to old occupations in the in the Aegean islands as a source of inspiration for the design and pilot production of novel goods, that prospectively could be of economic interest for the islands' tourist economy, contributing also in the establishment of place identity.

On theoretical grounds, old occupations can be viewed in the same way as endangered species. These occupations, have supported human subsistence for centuries forming part of the traditional economy, yet in a globalized world are fated to cease existing. In spite of such an inevitable future, the advocates of sustainable development recognize that there are a handful of benefits derived from traditional economy which actually nurtures a feeling of unity among individuals, helping in the development of social bonds, increasing local creativity and permitting people to enjoy popular autonomy. Under such circumstances a key research question arises on whether there are chances for traditional occupations to be saved from the verge of extinction.

From an educational point of view this research question formed the theme of an educational project designed at the University of the Aegean. The idea underlying the project was to use elements of traditional professions as sources of inspiration for the production of modern goods. These goods deviate from original production; they are redefined specifications of redesigned solutions, may have different uses and are addressed to different consumer groups. In many cases they are of interest to the cultural sector which is very important for the area's tourist industry.

The project was implemented in four phases:

1. A preparatory stage during which the learners have collected information about new and old occupations in rural settlements of the area in an attempt to distinguish the differences between traditional and new local economic and social life.
2. A brainstorming stage during which participants using concepts and items from traditional occupations create their own original designs of novel products.
3. A pilot production stage during which the participants worked in detail on their solutions applying different techniques and materials in an attempt to reach final products.
4. A stage of evaluation in two levels, the first concerning efficiency in flexibility and transformation and the second concerning the project's usefulness and attractiveness.

In conclusion, the project offered to the learners the chance to get in touch with the area's traditional identity, providing a new perspective through which traditional local production may be viewed. The project's rich outcome in ideas, designs and pilot products supports the view that traditional elements can be considered not simply as "museum-like" items, but as valuable sources of inspiration and creativity. Such an idea is expected to add to traditional entrepreneurship the element of novelty – an important feature in its struggle for existence.

The project has given educators and learners the opportunity to think in a sustainable and creative way and has provided a stimulus for developmental ideas and innovative proposals. The whole process served not only educational but also entrepreneurial and developmental targets and, in this aspect, it can be supported that it contributed to the empowerment of the local community.

RURAL DEVELOPMENT IN GREECE WITH WOMEN'S "FRAGRANCE" – BUT THEY DO NEED TRAINING!

Ioannis Chotzakianis, Xanthi's Prefecture Development Agency, Greece

In Northern Greece, and especially in the region of Xanthi, there is a considerable number of women associations and rural cooperatives, whose activities concern mainly the production of local products, the promotion of local gastronomy, the production of handicrafts and the reservation of the local tradition. Many of these associations and cooperatives have been financed through several European Programmes and Community Initiatives such as LEADER and the Integrated Rural Development Programmes through the Community Support Frameworks in Greece, in order either to be established or to expand their activities. Among the above mentioned women units, there are one cooperative and two associations in which one common special adults training programme had been carried out in 2007, in order either to get them more organized, competitive and sustainable or to amplify their members and get them more responsible, aware and skilled on developing new products for the tourism market.

This article describes the current situation related to the training of rural women in this area, concerning their mobilization on the field of organizing cooperative initiatives in order to develop new qualitative products for the tourism market, based on the local identity and resources, aiming to rural development. The aim of the quantitative research that had been implemented was to obtain an accurate image of the current situation concerned the access of rural women to training programmes related to rural development in the region of Xanthi and to scan their attitude towards the formation of rural women cooperatives. The sample of the research was 60 rural women, aged between 22-60 years old. The majority of women-members of these units are between 35 to 45 years. Despite the low income, women feel satisfied of what they totally earn from their participation in the cooperatives. Among the main motives behind women's decision to participate in a woman rural cooperative or association were the improvement of the family income, resistance to prejudice against female, need for independence, need for self-confidence, increase of social status and power, self reliance and promotion of the area. As far as the motives to women's decision to be trained are concerned, the main ones are the following: their low level of basic education, the lack of know how of management and marketing, the lack or the extremely low degree of cooperative spirit and the lack of knowledge related to sales promotion methods and ICT.

In conclusion, it is worth mentioned that women cooperatives are main parts of rural development in Greece. Their profile, activities and prospects enable them to be included in the factors of important impact in the rural development and the local economy. However, there are many problems concerning their operation, mainly related to leadership, marketing and organizational aspects. These problems could be solved through integrated and target group oriented training programmes.

THE SUSTAINABLE STUDENT AT KASAVUORI DREAM SCHOOL

Riitta Rekiranta, Allan Schneitz, Sirkku Nikamaa-Berg, Kasavuori School, Finland

The concept of the sustainable student

Economic, ecological, cultural and social sustainability are at the core of the Dream School concept. Education will play a key role in the transition of any society to achieve sustainability. Education itself must be transformed if it is to be transforming. Schools have the ability to increase students' motivation to live sustainably now and in the future. This is why learning environments must be models of sustainability. There are plenty of visions and plans for sustainability in education, but we have created *concrete* steps, efficient practice and innovative pedagogical approaches to motivate a more sustainable life.

Kasavuori Dream School has the learner's future needs in mind when developing all areas of school life. The school is managed more economically, ecologically and sustainably than before, which was already a high standard.

The most important result of this process is the impact on the mindset of the student. *The goal is that sustainable actions and way of life will not necessitate a conscious thought and effort, instead they become second nature for our learners.* Our goal is to equip our learners with knowledge and ability to make good, sustainable choices in all areas of their lives and give them confidence to make changes and exercise control that contribute to good life in a changing world. With their own example and habits they will disseminate the principles and practises that will help them and others live more sustainably.

Partnerships and the open source platform

The school cannot alienate itself from the lives of its students – it needs to be present in their virtual world. The teacher must be a guide and a collaborator, even an equal learner with the students. The use of web based tools and learning materials frees the teacher's time to work with students individually. A multitude of tools and learning applications stimulate creativity and bring joy into learning while supporting life skills and knowledge the adult of the future needs. The importance of networking, mastering collective competence and interaction skills will increase. Media skills are significant in surviving in ubiquitous society. The need for special experts and multi skilled people will increase. Dream School is in the deepest sense future oriented, a genuinely learning and sustainable school that aims to meet the demands of today and tomorrow.

Technology itself has no value – it has to serve the learner and sustainable development has to be the ultimate goal. We have created an economical and environmentally sustainable system, a platform for tools and services in the service of education in cooperation with flexible, reputable small- and medium sized companies (PPP-model). The Linux based system utilizing cloud services is easy to use, saves energy and reduces cost of support and extends the lifespan of computers by several years. The pedagogical- and IT models developed by the city of Kauniainen are available for other schools and communities and can be economically tailored to local needs.

The Dream School platform combines various disconnected communications solutions to one intranet service for all learners and staff. It is tailored to each user according to user privileges. Our open source technology, open APIs and interfaces solve the problem of non-standardized IT-environments and it allows 3rd parties and businesses to create and distribute learning and teaching applications. Intranet increases all learners' participation in school's functions. Learners themselves and their individual learning paths and activities become more visible both at school and at home.

Dream School is an active change agent and creates lifelong learners

At Dream School we are not merely reacting to the changes in society or waiting for the world to change. Instead we take concrete steps towards sustainable development in all areas of school life. Our students' awareness of sustainability is the focal point and an important vehicle for societal change in the future. Changing demands and rapid development necessitate a curious attitude, flexibility and life long learning. It is possible to fit together seemingly competing goals: economic viability, environmental quality, and social and cultural equity.

THE ROLE OF SUSTAINABLE EDUCATION AT OTAVA FOLK HIGH SCHOOL

Kaisa Lindström, Jenni Linturi, Enrique Tessier, Otava Folk High School / Otavan Opisto, Finland

Otava Folk High School (Otava FHS) is one of 19 folk high schools in Finland widely renowned for its work in web-based learning environments and alternative pedagogies. Otava FHS's approach is based on the folk high school concept as well as new pedagogies like phenomenon based learning. In a nutshell the main principles are:

- Perspective of relative truth, which means that truth can be uncovered by dialogue and by looking at phenomena from different viewpoints;
- Open dialogue and interaction, which is a way to learn together and from each other;
- Folkelig, or folk, which is based on democracy and empowerment;
- Perceiving education from a perspective of time: the past, present and future are inter-linked.

Otava FSH recruits students from inside and outside Finland. Approximately 100 learners study and live on campus while 600 are enrolled in the Online Upper Secondary School for Adults or the Online Comprehensive School Programme for Adults. ESD is for us a vital tool in implementing alternative pedagogy and a holistic approach. It was included on a larger scale in the early 1990s in the Otava Folk High School Action Plan.

Taking into account Otava FHS's values, it should not come to any surprise that the school's teaching methods are focused on learning instead of institutions. Ivan Illich as well as Matthias Finger and José Manuel Asún have fuelled debate about the new challenges facing adult education (Finger & Asún 2001). According to Finger and Asún, adult education plays an important role in building a sustainable human community threatened by turbo-capitalism, political decay, postmodernism and the ecological crisis. Arjen E.J. Wals, a Dutch educator for sustainable development, puts forth the following benchmarks for integrating sustainability in education: total immersion, diversity of learning styles; active participation; the value of valuing, balancing "far" and "near;" the case study approach; the social dimension of learning; and learning for action.

One of the areas we have developed in recent years is phenomenon based learning, which takes into account problem based learning, the case study approach as well as Kilpatrick-type project learning. This pedagogical method not only reinforces ESD at Otava FHS, but encouraged greater interaction between the learner, environment and educator. To summarise, the method combines the contents of different online courses and links them with real-life phenomena. Its aim is to deepen the learning process by opening new windows to the world (Kekkonen, 2010). At present most phenomenon based learning happens online and with adult students attending university or high school. The pedagogical tool has been used with the younger students as well.

Otava FHS partners actively with different research institutes, traditional and new organisations working for sustainable development. Some of these include: The Finnish Society for Futures Studies, The Finnish Society for Environment Education (SYKSE), SOMETU, a network promoting social media in education, and think tanks Dodo and Demos Helsinki.

A MODEL OF SUSTAINABLE DISTANCE EDUCATION BASED ON THE PRINCIPLE OF INCLUSION: NATIONAL AUTONOMOUS UNIVERSITY OF MEXICO

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The aim of this paper was to evaluate a degree online program for professionals in psychology. As a central theoretical element to carry out the evaluation we used the concept of sustainability as a reference of its capacity to solve problems facing for communities where students are locals. This is especially concerning social and environmental problems as health, education and infancy care. They also have to give some support based on the tools acquired in school, in order to attain a better distribution of economic resources, generating jobs in distant locations away from major cities. Hampering uprooting processes, and reducing the migratory waves that create serious problems for their own communities.

The UNAM's psychology program has a practical orientation in order to offer methodological tools to the students, without neglecting theory. This program includes 800 hours of social service.

Results of this project, six years after its implementation, has shown benefits in 26 states, throughout the country. This is especially true for provinces with high indexes of marginalization, indigenous population and little access to education institutions.

An outstanding experience took place in Santa Lucia Ocotlan where malnutrition and high maternal mortality indexes, were decreased through an educational health program for young mothers, sponsored by Pfizer Foundation.

Last December, Pfizer Foundation made a field visit to the project and evaluated it as one of the best projects it financed in the country. It will be published in the foundation's website as one of the most successful projects in 2010.

CREATING SUSTAINABLE LEARNING ENVIRONMENT FOR EDUCATION ON WATER TRANSPORT IN CROATIA SUPPORTED BY E-LEARNING

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Introduction and research background

The traffic system is a complex system and it is functioning rationally in the technical, technological, organizational and economic aspect. Study of traffic and transport encompasses research, development, transfer of knowledge and education of the scientific and engineering staff of the traffic and transport orientation. Creating sustainable learning environment for education on water transport in Croatia has been recognized as important learning domain and targeted to students who are entering the high education system and well as long-life learning participants. For that reason, aim of this research/paper is to present and analyze activities and initiatives in Croatia on sustainable learning development related to social aspects, learning capacities, transport market requirements, human resources capacities and e-learning opportunities and possibilities. Also, aim of this paper is to define the framework condition, challenges and opportunities for a international cooperation among the South-East Europe region and Danube region countries leading to technological innovations and implementation of common policies water transport sector learning activities and sustainable learning supported by e-learning.

Current actions and initiatives

Water transport department at Faculty of Transport and Traffic Sciences (FPZ) is currently participating in NELI project (Cooperation – Network for logistics and nautical education focusing on Inland Waterway Transport in the Danube corridor supported by innovative solutions), a European funded project currently being implemented in 8 Danube countries. Among other goals, project aims to develop and expand existing ICT tools for the sector of inland navigation – this refers to an Inland Navigation eLearning Systems (INeS). Sustainability learning concept will be ensured through implementation and operationalisation of the Proposal for National action plan for education and training issues in the field of inland waterway transport in Republic of Croatia validated by relevant political decision makers and stakeholders. Croatian National action plan will be a part of Transnational Action Plan (in the South East Europe – Danube region) for education and training issues in the field of inland water transportation

Future challenges and opportunities

Development and strengthening of the e-learning system, its efficiency and correlation of the teaching and research components should be correlated between the high education system and the economy, forming sustainable learning activities. Some of the future challenges and opportunities are defined as follows: establishment of a cooperation network of HEI, joint activities of understanding how e-learning can be integrated with other learning methods, design and implementation of innovative ICT tools, common sustainable learning actions at faculties in Croatia and cooperation with relevant stakeholders, harmonization, funding and updating e-learning materials etc.

Conclusion remarks

Republic of Croatia undertakes many activities for development, promotion and implementation of high education and learning activities, especially from the aspect of future EU enlargement process. Creating sustainable learning environment for education on water transport in Croatia is one most important long-term goals of FPZ taking into account relevant EU programs, directives and recommendations. Knowledge as a major tool of progress, development of education and science by international criteria of quality, creation of conditions for sustainable development is the first step towards a society of knowledge. In present environment lifelong learning is particularly important for maintaining competence and performance reliability of highly educated professionals of various professions in the field of transport. Many indicators confirm that in countries with developed lifelong learning, training and education possibilities, one can expect to find a job much easier. Therefore it is necessary to remove potential barriers for lifelong learning and education, to participate in appropriate programs and find appropriate ways of funding.

PROJECT EDUCATIONAL PROBLEMS OF ELEMENTARY SCHOOLS

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Introduction

The project Educational Problems of Elementary Schools has been prepared on recommendation of the Liberec Education Department. The project has been implemented since October 2008 based on funding by the Operational Programme Education for Competitiveness, No. CZ.1.07/1.3.03/01.0008.

Project Character

The project consists of preparation and pilot implementation of a course. A part of the project is a collection of case studies with a clinical psychologist's commentary. Current situation in project solving:

1. The course was accredited by the Commission of the Ministry of Education, Youth and Sports for continuing education of pedagogical workers.
2. The course was launched for 40 participants, 38 of them passed the second semester, 26 the third one.
3. Teaching of the module Socio-cultural Problems and Deviations in Behaviour will be provided in the summer semester 2011.
4. All 9 modules have been prepared in the LMS Moodle environment.

Course Character

The course has been designed for the elementary school teachers and organized as the combination of distance and presence form of studies. Study supports processed in the LMS Moodle are at disposal for fundamental subjects. The course consists of 5 theoretical and 4 practical modules. The total extent of studies is 156 lessons of presence studies. The objective of the course is to teach teachers how to face the most common educational problems of current elementary school students, how to recognize symptoms and causes of behavioural problems and disorders, how to distinguish behavioural disorders from uncommon behavioural displays and developmentally caused behavioural displays, how to communicate with problem students' parents and how to solve bullying.

Electronic Study Environment

The aim of the electronic study environment is – except for mediation in information on studies – to allow studying itself as well as enough of feedback activities. The content of the material has been divided in ten sections. The independent part consists of the introductory information: 2 terminology dictionaries; information on studies and their progress, entrance knowledge tests and complementary study materials. Nine of the following sections have the same structure and they are devoted to individual modules. The elementary study materials for practical modules have a form of printed manuals or DVDs with a demonstration of training. The electronic study environment will be presented.

Questionnaire on Progress of Studies

After passing the subject students fill in a questionnaire on progress of studies. Nowadays we have information on progress of 3 theoretical and 2 practical subjects. Interesting results of questionnaires will be presented.

Conclusion

Centre of Continuing Education has been integrating e-learning in further education courses since 2005, when first study materials in the LMS Moodle were made accessible. The study environment Moodle approved, students in all types of courses work actively with simple study materials and activities without multimedia effects.

EUROPEAN DENTAL SCHOOLS' PROVISION OF SUSTAINABLE LIFELONG LEARNING THROUGH AN E-MODULE – STEP 1: THE CPD INVENTORY

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Introduction

The DentCPD project (Dental Continuing Professional Development) aims at the harmonization & standardization of European Dental Schools' programs of continuing professional development for graduate dentists. The project aims to identify agreed essential CPD requirements of an EU graduate dentist and provide guidelines for the management and delivery of high quality and sustainable CPD by European dental schools. The project partners are the Dental Schools of Cardiff University (U.K.), Athens University (Greece), Helsinki University (Finland), ACTA (the Netherlands), Rīga Stradiņš University (Latvia) and the Association for Dental Education in Europe (ADEE).

Aims

This first part of the DentCPD project aims at mapping the current situation in Europe concerning the dental lifelong learning, including the existing CPD programs, providers, methodology, quality assurance and accreditation.

Methodology

A questionnaire was developed and distributed through e-mails to European Dental Schools, professional associations and other stakeholders. The questionnaire included questions concerning the existing situation on dental CPD, in the respondents' countries, i.e. CPD systems, CPD provision and accreditation, core CPD subjects, as well as personal views and opinions on lifelong learning and personal data. Answers to the questions were of yes-no type, 5-point Likert-scale and selection(s) from provided lists. Descriptive statistics was applied for the presentation of the results.

Results

163 responses were gathered from 32 European countries. All countries had a national regulatory body for dentists and 91% of the countries required dentists to be recognised by this body before they could practice. 61% required annual registration. 80% of the dentists think that CPD should be obligatory and 68% indicates that it should be available electronically. Most dentists (88%) in most countries (93%) prefer the courses that combine lectures with hands-on practice and conferences to upgrade their knowledge. Only 10% of the dentists use the internet and very few (3%) in few countries (3%) use e-learning packages. 58% of the countries do not have compulsory/ core CPD topics, whereas 42% of the countries require the dentists to regularly undertake core topics for their professional upgrading.

Conclusions

The questionnaire revealed that dental continuing professional development differs significantly in the European countries. A variety of methods for upgrading professional knowledge and skills exist, but very few use e-learning packages. The necessity for the development of an e-learning package on a core topic derives from the results of the questionnaire, as well as the need for establishing guidelines for the provision of dental CPD across Europe.

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USING THE PROGRAMME EXCEL IN THE CONCEPTION OF QUESTIONNAIRES AND DATA ANALYSIS – A CASE STUDY IN E-LEARNING FOR LIFELONG LEARNING TEACHERS

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Sustainability must be understood as a commitment with the future, not merely as a goal that can be taken, but one way that organizations must follow in order to find the best solutions to human concerns. In the case of sustainability in education, this commitment includes making knowledge's process transmission continued throughout life, sharing them among different generations and diverse targets. The Universidade Aberta (Uab) is an institution of higher education that has made a strong effort for sustainable development in education, in the sense that has democratized the access to knowledge by diversifying the supply of pedagogical materials and placing them within reach of everyone, everywhere and anytime, which is reflected in the impact in terms of Human Capital. This contribution has been strengthened by the diversity of teaching on short courses, continuous education for professionals, integrated into Lifelong Learning (LLL). This paper presents a case-study in both the areas of LLL and ongoing teacher training through e-learning. The training session "Introduction to Questionnaire and Treatment in Excel", which was the basis of this study, is aimed at primary and secondary school teachers and was organised by the Uab Science and Technology Department (DCeT). Excel is an integrated tool in the Office package, so it is accessible to everyone and can be used according to the needs of each one. The use of this package can serve multiple domains, is versatile and easy to use. Both LLL and ongoing teacher training are strongly recommended in the European Union memo and vastly used in classroom teaching in Portugal, however, its usage in the e-learning process is rare. The UAb had a pioneer role in the diversified offer of LLL's in teachers' ongoing e-learning training by introducing in its 2006-2010 and 2010-2014 strategic plans lifelong training sessions as one of its main priorities. This session was based on the UAb's Pedagogical Model using the MOODLE platform which is based on a type of distance learning through online mobility, in a virtual classroom environment. The virtual classroom is an organized space where both the contents and the didactic materials are made available, and where the following interactions (trainees-trainees; trainees-trainer; trainer-trainees) take place, with the aim to promote learning. Asynchronous communication was privileged with an emphasis for discussion forums, whilst having in mind, readings, platform access, files download, possible research, individual thoughts, and participation in both group and final assessment assignment.

In this study, a training session was set up in its totality as e-learning and organised over four weeks, combining a total number of 26 hours of individual and group work. It was divided in five modules. Different types of activities were proposed for each of the modules. During online classes, the trainees were encouraged to take on the role of learners and to develop the activities in which they were active subjects in the process, instead of being isolated and without interacting with the remaining group. The assessment was based on two criteria – virtual classroom and discussion contributions, as well as, the final assignment. The assessment of the discussion contributions was based on the following criteria: meaning/quality of the contributions; time/opportunity; frequency of the contributions; cooperation with colleagues. The final assignment consisted in the creation of a small database in Excel and its statistical/graphic treatment using the functions mentioned during the training. The report was assessed having in mind the following factors: scientific correction; knowledge of the fundamental concepts applied in the assignment; knowledge of data handling in Excel: ability to critically analyse results, presentation of results and conclusions.

The main considerations about this study were that the motivation most often mentioned was the subject followed by flexibility, and only few participants indicated the acquisition of credits as the main choice. The engagement of trainees in all activities was very expressive of the interest and enthusiasm of its holdings. It was more dynamic and participative when was conducted the group activity. In our opinion a key aspect of this type of training course is the introduction of structured model, with specific timings regarding activities, in order to motivate learners and decrease a physic distance thus maximizing both individual and work group contributions. Nevertheless in LLL ongoing teacher training although students had different levels of knowledge about Excel and some of them never experienced online distance learning or knew the Moodle platform, an excellent level of interaction and dynamism was achieved , namely if we compared this course with other lengthier courses. Future work with LLL teachers shall be conducted in order to achieve the fundamental key to the successful of this kind of online course.

RELEVANCE OF RESEARCH AND STUDY GROUPS IN ICT-BASED CONTINUOUS TEACHER PREPARATION ON SEXUALITY EDUCATION

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Research and study groups enable reflections for further training as well as for complementing teacher education with specific issues such as the object of this study: sexuality education and its development with the support of ICT. The purpose of this study was to investigate how two research and study groups about sexuality and sexuality education, one from Brazil and the other one from Portugal, act and construct themselves, and how ICT has been used in order to disseminate their educational projects promoting the quality of life of the community. A qualitative approach was used. Data collection was conducted through semi-structured interviews to 3 members in each research groups under study. Results pointed out the relevance of research groups on sexuality and sexuality education, with the support of the ICT, for the transformations in the school community through initial or continuing teacher education.

CONSUMER FRIENDLY PORTAL PRACTICES – CREATING SUSTAINABLE LEARNING ENVIRONMENT

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Sustainability and e-learning

E-learning is primarily aimed at life-long learning as it provides

- tools to share and to preserve information being created and accumulated by the previous generations;
- access to information in the most convenient forms, at the most convenient time and in the most convenient place and to the greatest numbers of people;
- tools for communication.

Hence in its very essence e-learning is intended for creating sustainable learning environment and is characterized with a capacity to endure that is to open and transmit knowledge to a vast number of people and save it for the benefit of future generations. A sustainable e-learning environment is not only flexible in terms of time, place and forms of acquiring knowledge and as a result is becoming more technically complicated and sophisticated in closest connection with the evolution of science and technology but it should also be consumer friendly. There are at least two ways to follow consumer friendly approach to e-learning. The first is to arrange preliminary training both of students and the staff how to study and teach in e-learning environment. The second is among a great variety of e-learning tools, platforms, portals and technologies to pick out and further develop only those which are consumer friendly.

Consumer friendly portal solutions for e-learning in MESI

More than 15 year experience of MESI in introducing and developing e-learning technologies allows formulating a set of requirements e-learning tools, platforms, courses, etc. have to meet in order to be consumer friendly. Being consumer friendly means

- being easy for use due to an intelligible interface and one step access to the needed part of learning environment or course;
- being visualized, that is being full of bright illustrations which stimulate and facilitate apprehension;
- being flexible and easily up-graded and modernized;
- having multiple access to the learning materials, first, because there may be various preferences to navigation and learning among both tutors and students, second, because this mode helps to individualize the process of learning depending on abilities, skills and previous knowledge of students;
- having block (layer) architecture of learning materials allowing to build different navigations depending on the individual abilities, knowledge, preferences both of learners and tutors;
- being multimedia to the most extent possible and thus allowing to rely on various human senses in acquiring new knowledge.

Measurement of consumer friendliness

To assess the extent of consumer friendliness of our portal solutions there have been compiled a number of quizzes for students and tutors. These quizzes include questions about their likes or satisfaction as far as consumer friendliness of e-learning is concerned. All questions are divided into three blocks:

- whether they are satisfied with the technical aspects of e-learning;
- whether they are satisfied with the content aspects of e-learning (for tutors these questions deal with the learning tools available, while for students these are questions about effectiveness of learning materials);
- what they would like to improve in e-learning in order to increase its consumer friendliness.

Consumer friendliness feature of e-learning practices become a reliable basis for lifelong and sustainable learning in its social individual aspect. Consumer friendliness helps to stimulate further interests in new skills and knowledge acquired through e-learning technologies.

SUSTAINABLE LEARNING ON PH.D.-LEVEL – PROJECT BASED ONLINE RESEARCH TRAINING IN THE EDUCATION & TECHNOLOGY RESEARCH NETWORK

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The paper deals with the need to develop sustainable organisational structures and cooperation patterns to assist Ph.D. training in the interdisciplinary field of education and technology research. To meet that specific situation the authors have developed different online media based distance education models over a period of more than 5 years. In the paper the focus is set on two basic approaches: (1) Network development to meet curricular needs of Ph.D. training and (2) Design of a virtual system for managing individual Ph.D. research projects. Subsequently the paper is divided into two sections dealing with always one approach plus a short conclusion.

Organizational patterns for Ph.D. training: the Education & Technology research network

Ph.D. education deals with different challenges: the need to link locally working young researchers with the international community. In the field of education & technology another issue is critical: most of the researchers come from one side of the discipline (education versus technology) and need to improve the knowledge about the other side before conducting the very research projects. More and more the usage of so-called social software plays a role. Thus the aim of the project “Education & Technology” (E&T) was also to develop, test, implement, evaluate and disseminate a curriculum at postgraduate level in the field of educational technologies. To improve the way of qualifying and graduating Ph.D. students in the field of educational technologies, five European universities and two public research institutes have established a European network. Over the last 5 years the “Education & Technology” network has developed specified organizational patterns: A) a joint bi-annual curriculum which contains e-Learning elements (e-Modules) and presence teaching to be certified by using ECTS; B) 4 e-Modules available online plus a forum to enhance contact, discussions and learning outcome among the Ph.D. researchers; C) an annual European summer school; D) an international supervisory system with two supervisors from two countries and a joint Ph.D. degree (“co-tutelle”).

Design of a virtual system for managing individual Ph.D. research projects

In preliminary research a web-based community project management online system (www.Phd-lab.com) has been developed. This Ph.D.-lab system is based on the Community-Based Project Management (CBPM) learning model by Mohamed & Köhler (2009), which provides a pedagogical approach of learning occurrence into informal project-based learning and situated learning environment by project method. The Ph.D.-lab system has been developed by adapting the Joomla open-source CMS, in order to build widgets' system, and learning content. It has been tested technically to ensure that system functionality and usability and usefulness for learners. The results indicate that system is almost free of programming errors and has a significant level of acceptance by its users. Subsequently this paper can discuss the role of such an online social environment for a novice researcher, in order to practice its research activities in academia. By that one may investigate which web2.0 technology platform could be the most appropriate solution for carrying out different research activities.

Conclusion

Sustainable learning on Ph.D. level needs improved organizational patterns. Such can be supported especially by online media when the research domain is of an interdisciplinary character. Research activity itself can be supported ideally by e-Learning-like project management tools. Still often both supervisor and Ph.D. candidate miss to identify such needs which are crucial for successful research projects.

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THE USE OF THE LEARNING- AND CONTENT-MANAGEMENT-SYSTEM "OPAL" AS A TEACHING ARRANGEMENT

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Introduction

The development and use of educational software began with the widespread installation of computers in the classrooms in the 1980s. For individual learning as for learning in groups and communities the development has lead since that time to many software and the necessary new infrastructure. Meanwhile every student has its own PC and can use public information and learning systems at almost each university or library. The paper deals with the teachers needs in the context of the introduction of so-called E-Learning technologies over the last two decades. Empirical data come from the academic education sector of the German stat of Saxony, delivering some insight in the role of teaching environments and teaching arrangements. To support students different LMS (learning management systems) have been implemented also in universities of Saxony at the end of the 1990s, some of them are still in use. From 2000, the Saxonian state government decided in consultation with the universities to support only a single system for all Saxon universities.

Teaching environments and teaching arrangements

As teaching environment we define all the surroundings immediately available for the teacher while lessons are taught by him. Media are an important part of the learning environment and with the use of digital, server- or web-based media, this learning environment is enhanced towards a virtual environment. Such gives the teacher not only media available in class, but lets him also access every item used by the learner! If such a virtual environment was arranged and designed by the teacher himself we speak of a "Teaching Arrangement". Today as teachers we always reflect on both groups: the organization and realization of our own teaching, including the therefore necessary media and the support of the self-contained, preferably interactive learning of our students and pupils and what media we can give and recommend to them.

Requirements on an e-teaching system

Quality teaching is also characterized by a sensible use of media. Just after a few years of work teachers have a very extensive collection of teaching and learning media. While for lectures and presentations the presentation media can be well planed, the selection of the media fitting for seminars and exercises often depends on the participants. For a variety of learning situations there should be a number of different media available. The dispositive design option of the learning environment was thus transferred to the design of the teaching environment and the necessary framework described.

The development of e-teaching

One quality criterion for good teaching is the self-contained use of various media. These media achieve a range of important pedagogical functions, they can trigger interest and motivation, increase the clearness, help to spend the learning time more efficiently and allow various and vitalized lessons. Limits of the teacher to his own voice, his panel and slides are generally overcome. The consistent introduction and use of digital media and the corresponding quantitative increase of usage leads the teacher to the need of controlling the own media collection. In contrast, for learner-oriented scenarios we need a larger media didactic variability and flexibility of the teacher. This problem is explained by the description of the teaching action, its structure and activity analysis from the perspective of dealing with the media. Here media may also play an important role, if we apply the basic approach: variability and flexibility of the teaching actions are not tied primarily to educational media, but to the substantive and methodological variability of the teacher. In addition to the different didactic functions now methodological variants, next to the respective media play no according role, with e.g. comparable situations illustrated in different ways by choosing different levels of abstraction or selecting different tasks for the individual performance of students.

ARTIFICIAL INTELLIGENCE IN E-LEARNING SYSTEMS

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For students in industrialized countries, where a better education no longer correlates to having a higher living standard, Artificial Intelligence (AI) and personalized learning environments can play an important role in providing the required motivation for these students to learn (Andersen, 2011). Today's Intelligent Learning Systems (ILS) can include sophisticated AI agents which may have advanced animated interfaces and, in some cases, may even mimic emotional responses and interactions. Based on the design of early expert systems, these ILS are good at storing and providing large amounts of information but they lack the innate, sophisticated reasoning and decision making abilities of human teachers. Today's technologies could be improved immediately by adopting standardized frameworks and the work of Marvin Minsky on intelligent machines points to areas for exploration to improve current systems (Boyle, 1998). Future trends in this area point to integration with social networks, both technologically and pedagogically, and Web 3.0, termed the 'semantic web', could make these systems genuinely able to understand the information they contain leading to greater adaptation to the needs of individual students.

History of AI in Electronic-learning Systems

Since the early 1970s scientists have been investigating how computers and AI could be used to improve learning systems. According to Welham (2008), "the SCHOLAR system, developed by Jaime Carbonell (1970), is often considered in the United States to be the first intelligent tutoring system" (p. 288). One of the earliest programs to look at using AI in knowledge based systems was the Alvey program which was run by the UK government from 1983 – 1988 and produced several successful pieces of work. The successes of many of these projects were enabled by the creation of new programming languages which could be used for AI development such as LISP and PROLOG. These languages allowed developers to manipulate symbols instead of numbers and facilitated the creation of the first learning systems (Welham, 2008). The creation of concept mapping in the mid-1990's gave technologists the structure they needed to create automated learning agents.

Intelligent Learning Systems, Teachable Agents and Personalized Learning

It is accepted teaching other students can itself be a learning tool, with studies showing that people who prepared to teach others for a quiz, performed better in the same quiz than those who had been taught (Bargh & Schul, 1980; Biswas et al., 2005; Bodenheimer et al., 2009). The explanation seems to be that the process of preparing and teaching the material provides a deeper level of understanding and learning. Teachable Agents (TA) embedded in ILS allow students to play the role of a teacher by teaching these agents and the efficacy of this method on improved learning has been widely reported (Biswas et al., 2005; Chin et al., 2010; Leelawong & Biswas, 2008). Most ILS incorporating AI technology are not sophisticated enough to out-perform human teachers who naturally maintain an internal model of where a learner is along their learning path, and modify their teaching accordingly. Current systems are also limited in the amount of psychological information they can collect about their students. This information is used to create cognitive models of the students and only using keyboards, mice and question responses to create these models omits a huge volume of physiological and emotional information (Pek & Poh, 2005).

The Future of AI in e-Learning

Futurists are now starting to discuss what they term the "valuecosm", which is a system that allows our digital avatars to make automated decisions on our behalf, based on our values. This would allow students to delegate non-important decision making functions to their avatar and afford them more free time to focus on the important work of learning and meta-cognition (Andersen, 2011; Chin et al., 2010). Finally, the movement towards Web 3.0 or the 'semantic web' may mean intelligent systems become genuinely capable of understanding and processing data independently. This would move AI and educational research into previously unimaginable areas (Welham, 2008).

NO MORE PAPER "T.O.D.A.Y" – TOPICAL ON-LINE DISCUSSIONS FOR ACTIVE YOUTH

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T.O.D.A.Y (Topical On-line Discussions for Active Youth)¹ is an e-learning project promoted by an informal group of researchers in order to develop critical thinking and language skills in young people (18/20 years old) through informal and non-formal activities (e. g. collaborative learning and editing of online journal). E-learning tools (CMS, Social Networking activities, Web 2.0) constitute an opportunity to realize sustainable knowledge environments for young people. Nowadays, in fact, young people have to learn the boundless world of digital online information in a critical way which is the most suitable for their purposes. So doing, young people could take the chance to develop their own abilities to "write the media," creating original multimedia products (e.g. on-line journal). Is it possible to use the new technologies in this process in order to promote, realize and develop critical consciousness and accomplish the rights of citizenships? Bentivegna underlines: "new technologies can be used to promote participation of citizens into topical issues about general interest. This underlines the opportunity to create new community forms, even virtual, within a public sphere where citizens can debate about relevant political issues" (Bentivegna, 2002, p. 51). All young participants, supported by a journalist, will write individual and/or collaborative articles on kind "civic, or public, journalism", also known as "participatory journalism". E-learning becomes a tool to sustainable creativity, active participation and civic responsibility of young people that will be involved in the project. The Research Team foresee a sample of about 30 to 50 recipients attending secondary school last year in Marigliano (Naples – Italy). The main objectives of the project are:

1. To promote an active, effective, and, most of all, conscious use of new technologies in young people, in particular of social network "Facebook".
2. To develop active citizenship, civic consciousness, critical thinking and social and political responsibility of young people. The activities proposed will be based on informal and non formal learning kind of civic journalism, that can be considered a new follow-up tool of participatory democracy people can use to participate in public life. Each participant will write articles, individually or in a collaborative way (using Sync.in tool) and with the support of two e-tutors.
3. To awake public awareness of topical issues in secondary school. Civil rights, environment sustainability, disabilities, are the main topics that will be discussed on CMS platform (Wordpress).
4. To support the active listening, peer review and horizontal learning in young students. Moreover participants will have to produce original contributes (journalist articles) in order to improve Italian language skills.

The activities foreseen throughout the project for its implementation will be organized in five steps: promotional step (involvement of a large number of students will be carried out through promotional activities at local level); definition of indicators of young participants' rate to the public life (an electronic questionnaire to investigate recipients' characteristics, their participation in public life, knowledge of topical issue debates on media, their digital competencies); development of online discussions.(horizontal debates about topical issues dealing with different areas - human rights, environmental sustainability and social consciousness supported by three face to face meetings); implementation of online journal "T.O.D.A.Y."; results diffusion and dissemination.

¹ A project to improve civic awareness and language skills in young people with online collaborative activities.

COMPETENCY MATCHING BETWEEN VOCATIONAL EDUCATION AND THE WORKPLACE WITH THE HELP OF ONTOLOGIES

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Introduction

According to the Bologna qualification structure different levels of education must prepare a student for particular organizational needs and prerequisites. Students finishing their studies at various levels of education have to go through an organization's Prior Learning Assessment, in which previous experience and qualifications are evaluated against entry requirements (skills and competencies) for the job role. The field of personnel selection has its roots in the notion that a candidate's future job performance in a particular position may be predicted at the time of selection on the basis of relatively enduring and stable characteristics of that candidate.

The domain of this research, the ontology based selection and recruitment environment, is emerging from this conversion problem of the European educational sector. The main idea is to introduce an interface between levels of higher education and workplace. This interface, based on the individual's previous qualifications, completed levels, corporate trainings and practical experiences, should be capable to match students' existing competences with the desired academic programs' entry requirements. Candidates are selected for the particular academic program or job profile, and on the foundation of this assessment learning content will be provided to compensate their missing competences. Broad educational qualifications are too crude for purposes of personnel selection. Therefore such specific qualification to job matching should be created that can also tackle with the conversion of educational qualifications into job related competencies. An even more comprehensive problem related to this research field is structural unemployment – a great risk emerging from the financial crisis Europe is experiencing today. Such solutions should be worked out that enable unemployed people to target their learning efforts in order to regain employment. Furthermore there is a projected European workforce shortage in the target sector of this proposal (IT related professions), and due to this shortage competency matching will be very important in the future.

This research aims at creating more specific qualification to job matching, with the overriding purpose of tackling the conversion of educational qualifications into job related competencies. To facilitate this, an ontology supported selection and training system has been built in line with relevant HRM and Knowledge Management (KM) theories employing existing educational technology such as Content Management Systems and adaptive testing. This eLearning interface is able to:

- Map qualifications in education to current and valid job roles
- Test and evaluate students on the basis of valid, labour market driven competencies
- Identify missing competencies and provide learning content needed to acquire them
- Address the weaknesses of particular educational curricula, and thereby provide ad-hoc support.

Innovative aspects of the solution

Although a handful of ontology based systems have been successfully implemented both within the fields of HRM and education, the readily apparent desirability of bridging the vocational education – workplace divide, by means of interconnected VET and domain ontologies as outlined in the current research proposal, is unique. Filling this increasingly conspicuous research gap may in due time put an end to the arduous process of first testing students to allow them to successfully exit vocational education, only to test them again upon organizational entry. Indeed in due time, we foresee that this technology might further facilitate the blurring of vocational education to workplace boundaries, by allowing the adequate and accurate measurement of time to proficiency in a particular occupation, while at the same time continuing the delivery of training content that is tailored to the needs of the individual student.

This research has been carried out within the OntoHR Project (www.ontohr.eu) with the financial support of the European Commission.

GENERATING RESEARCH PROJECTS THROUGH INTERACTION BETWEEN ACADEMIA AND ENTERPRISES?

Claudio Delrio, Suor Orsola Benincasa University, Italy



Fostering creative co-generation of innovation...

- How to foster multi-stakeholders generation of research projects?
- How to enhance European Creativity and innovation capacity?
- What are the challenges to tackle in view of fostering dialogue between Academia, Industry and other stakeholders on research projects co-generation?

GRACE wants to find answers to these and many other questions.

The overall aim of GRACE – Generating Research projects through interaction between ACademia and Enterprises is fostering multistakeholders co-generation of research projects combining various techniques and approaches such as goal setting creativity techniques, diversity management, cross-sectoral and cross-cultural negotiation, in an open innovation perspective.

The GRACE specific objectives are:

- to investigate the state of the art on universities/industries cooperation and methodologies and innovative practices supporting the multi-stakeholders generation of research projects
- to increase the awareness and capacity of enterprises, universities, research intermediaries, user representatives and other stakeholders of the need to promote creative co-generation of research projects
- to develop an approach for improving the research project generation process involving the afore-mentioned stakeholders
- to test and validate the proposed approach in real life contexts and explore its transferability potential
- to create a platform for dialogue for all those aiming at promoting dialogue between universities and industries

GRACE is a project co-funded under the European Commission's Lifelong Learning Programme, sub-programme Erasmus-Cooperation university-enterprises. The project's website: <http://www.grace-project.eu/>.

FROM THE UNIVERSITY TO THE VILLAGE: A SUSTAINABLE MATH AND SCIENCE E-LEARNING INITIATIVE FOR GIFTED STUDENTS

Elran Michal, Bar Carmel, Elran Yossi, Weizmann Institute of Science, Israel

One of the major challenges of the 21st century is bridging the gap between the different socio-economic levels of society e-learning is a great way to do this. Gifted students, in particular, can benefit from E-learning, since these students are more adapt to self-directed learning. Perhaps for the first time in history, the rural gifted child can now be given the equal opportunity to realize his or her potential.

In our demonstration, we present two e-learning programs, created by scientists and educators at The Davidson Institute of Science Education, the educational wing of the Weizmann Institute of Science. The aim of these programs is to increase the quality of opportunity for gifted children, empowering them to actively participate in the sustainable scientific learning communities. *Math-by-Mail* and *Science-by-Mail* provide the gifted and talented student with enrichment that stimulates creative thinking and expands the student's knowledge way beyond the limits imposed by the curriculum, by their peer environment, by their socio-economic and geographic limitations and even by language barriers. The programs are dominated by ongoing, online, continuous correspondence between scientists and children from different socio-economic, cultural, religious and geographic backgrounds, in Israel and other countries.

The programs are made available to students between the ages of 8 and 16 who show interest and talent in science or mathematics, in four different languages: English, Hebrew, Arabic and Spanish. Children from underprivileged backgrounds are actively targeted for participation in the programs. In 2010, over 3000 children from six countries participated in the programs. Preliminary surveys report great enthusiasm on the part of children, parents and teachers alike. All the work in the programs, including design, development and of course the actual learning and review processes are performed within a special purpose e-learning system. A short description of the learning procedure follows.

The children are presented with a series of four online, interactive, challenging e-booklets in extracurricular math or science (typical topics might be: the science of popcorn, game strategy, magic squares and many more). In each e-booklet, the students are introduced to a main topic, and then asked to answer a series of questions that get harder as they proceed. Many types of questions are allowed, such as open and multi-choice questions etc. Along the way, the students also learn more advanced material about the topic as well as related items such as biographies of mathematicians and scientists, general knowledge and trivia. For the younger age groups, the booklet includes a fictional narrative that makes it a story with math intertwined in it. The e-booklets are highly interactive, include many applets, simulations and multimedia and encourage both peer-to-peer interaction and student-scientist interaction, via special purpose forums, chat-rooms and message facilities.

Once the student has completed solving the questions in each e-booklet, their solutions are submitted for review to scientists and mathematicians who add their comments electronically. The system then indicates to the student that the process has been completed and he or she is invited to read the comments and the full solution. The e-booklets are graded internally so that each individual student can be assessed and the whole program can be monitored. However, since the programs are intended to be cooperative rather than competitive, the actual grading is hidden from the student and he or she receives only "positive reinforcement" feedback. Participants can discuss their solutions and any math or science-related question relevant to the program with their peers and with the mathematicians and scientists running the program.

Both programs are implemented with the Modular Object-Oriented Dynamic Learning Environment (Moodle), an open source Learning Management System (LMS), which has been specially adapted to achieve the programs goals, in particular, the ability to integrate a wide range of resources and many tools for construction, design, organization and management of courses and lessons. The students' progress can be easily assessed by using evaluation and feedback tools.

A demo site of *Math-by-Mail* can be found at this link: <http://www.weizmann.ac.il/davidson/e-learn/en> and can be accessed using the username: demo123 and password demo123.

SVEA – A DEMONSTRATION ON HOW TO PROMOTE THE WEB 2.0 UPTAKE IN VET AND ADULT TRAINING IN A SUSTAINABLE WAY

Petra Newrly, MFG Baden-Württemberg mbH, Germany, Ilse Op de Beeck, Wim Van Petegem, EuroPACE ivzw, Belgium, Lara Marcellin, CSP Innovazione nelle ICT, Italy, Tony Toole, Coleg Sir Gâr, United Kingdom

What the SVEA demonstration will be about?

The SVEA project¹ (www.svea-project.eu) addresses the collaboration and web 2.0 skills of trainers in VET and adult training institutions with a special focus on personnel and organisational development. Personnel and organisational development plays a significant role in the strategic development of every organisation. Especially for organisations whose business concept is based on the knowledge of highly qualified employees such as training institutions depending on innovative personnel and organisational management concepts. To strengthen the trainers' competences in the use of web 2.0 in their trainings, SVEA has developed a training programme to train the trainer on how to integrate web 2.0 tools within their trainings. Parallel to that, a collaborative open source based platform has been set up allowing the trainers to learn and to work collaboratively together and to use the platform to offer more learner-centred teaching methods by using web 2.0 applications within their courses. The SVEA demonstration focuses on the newly developed collaborative online platform and will both outline how it can increase virtual collaboration within VET and adult training, but also how it can innovate the management processes within training institutions. During the session not only the technical functionalities of the platform will be demonstrated, but attention will be also paid to the training concept and how the training modules and platform can be used in an effective way within the organisation and the trainings.

Novel characteristics of SVEA

The use of new forms of collaborative online working, communicating and teaching, using technology in VET and adult training is still not very common. The increased use and promotion of the benefits, of new innovative web-based forms of working, qualification and communication processes through the usage of web 2.0 tools within VET and adult training institution is therefore the main focus of the SVEA project. The following novel characteristics can be outlined:

- The collaborative SVEA platform is an open learning platform developed with OpenAtrium, based on the Drupal framework. It is therefore free of charge for every interested institution or single trainer. The platform is characterized by a very easy-to-use interface and offers the following functionalities and features: workspace based on groups; multilingual environment; personal and customizable dashboard; personal profile; notifications; blog; micro blogging; wiki; calendar; file repository; ToDo list; OpenID & LDAP integration; bookmarking content inside the platform.
- Openness: The SVEA platform is accessible and downloadable by everyone free of charge. Any interested training institution can thus install and integrate the new developed platform into their own system and adapt it to their own purpose. By strengthening the collaborative aspect of learning and working, it further strengthens the open production of content and knowledge exchange between the participants. Additionally, all new developed functionalities will be transferred to the larger OpenAtrium community which consequently also benefits of SVEA's developments and can develop them further.

Why is the SVEA demonstration relevant to the EDEN conference?

By offering web 2.0 in education training to trainers from VET and adult training institutions, and by offering a collaborative online platform, SVEA contributes substantially to the increased use of virtual collaboration in the lifelong learning field in Europe and to sustainable learning communities of the future. It also raises the awareness of trainers regarding new flexible learning and teaching methods and the training institutions' management in setting up innovative institutional processes such as collaborative knowledge management processes in using web 2.0 tools. At the same time, SVEA aims to strengthen the openness of the learning society as all participants learn about the benefits of web 2.0 tools and gain experience in working collaboratively and exchanging their knowledge in an open and collaborative way. All these activities will further strengthen the knowledge society in Europe in a sustainable way.

¹ This project has been funded with support from the European Commission within the framework of the Lifelong Learning Programme (Leonardo da Vinci). This text reflects the views only of the author, and the European Commission cannot be held responsible for any use which may be made of the information contained therein

TAKE 5: A FLEXIBLE APPROACH TO SUSTAINABLE CPD

Margaret Adamson, Lorraine Walsh, University of Dundee, United Kingdom

This demonstration addresses the following four Conference Themes:

- Smart e-learning solutions in support of increasing resource effectiveness.
- Sustainability and openness as business models in learning.
- Sustainability of knowledge management: changing lifecycles of learning by re-use of learning objects.
- Flexible learning strategies and institutional innovation supported by ICT-enhanced learning

The Take 5 Programme

The Take 5 programme is series of short, 5-day, self-study topics on Web 2.0 learning technologies, accessed via desktop delivery, with daily activities designed to be completed in the spare five minutes a participant has at his or her desk. It has been developed as a generic resource as part of the University of Dundee's Educational Development programme and is currently being piloted across the institution. Current topics are: Blogs, Wikis, Video, Audio, Social Bookmarking and Presentations. Each unit is designed around 5 themes, so over the 5 days participants will have the opportunity to: define; discover; design; deliver and discuss. The course is based on a daily wiki for each of the themes, and although the first four days are purely self-study, participants can engage in dialogue using the comments mechanism. The final day brings all the participants together in a tutor-led online discussion.

The rationale behind the development of Take 5 is to address the need for staff to be able to access, and be supported in engaging with continuing professional development (CPD) activities, through an approach which:

- provides high quality, interactive development opportunities based on Web 2.0 technologies which can be accessed remotely;
- empowers participants by shifting control (e.g. choice over time and place of engagement with the resource) from the provider to the user;
- involves short but effective periods of purposive learning;
- provides the participant with a cohort of peer learners, tutor support and opportunities for discussion, in addition to the flexibility of self-study.

Development as an OER

The next stage of this project, currently underway, is the further development of Take 5 as a sustainable CPD e-learning resource, through the creation of a set of re-usable open educational resources (OERs)¹. Capitalising on the capabilities of Web 2.0 technologies, there is significant potential for ongoing development of Take 5 as an OER.

- The Take 5 model can be delivered as both a generic or subject-oriented learning resource.
- Units on specific topics can be designed to run for a variety of time-limited periods in order to integrate with the structure of an accredited CPD programme, or can be delivered as a stand-alone resource.
- The flexible nature of the resource has a direct appeal for busy academics and particularly those who may be part-time or associate members of staff, with limited time on campus.
- The interactive nature of the resource has the potential to include formative and summative assessment by self, peer and tutor-led approaches.

The Take 5 model provides, therefore, a flexible and sustainable approach to CPD which supports equality of opportunity to engage with and access the resource.

Demonstration of Take 5

The demonstration will provide an opportunity for delegates to engage with and comment on the current and potential future development of the Take 5 model as a key component of an approach to learning based on the concept of a 'sustainable professional e-learning toolkit'.

¹ As part of a Higher Education Academy/JISC funded OER project – 'Open for Business'.

DEVELOPING AND DELIVERING A BLENDED LEARNING FRAMEWORK FOR CPD WITHIN AN ACADEMIC CONTEXT

Christine Truran, University College Falmouth, United Kingdom

The *MA in Professional Media Practice* provides a CPD (Continuing Professional Development) framework for the creative industries that emphasises accessible, flexible learning and innovative pedagogies. Made up of a sequence of short intensive courses, it has successfully demonstrated the potential of CPD within an academic context to attract a diversity of students and reach out to new markets.

This demonstration offers a practical case study of learning materials developed for a recent short course, focusing on the VLE (Virtual Learning Environment) and student journey.

Key to the MA's success is its use of blended learning – a combination of intensive face to face workshops and online project work – that allows time constrained professionals to engage with learning part time, from a distance, and at times to suit their working patterns. Students can design their individual learning pathway by selecting from a range of modules, and by integrating work based projects into their assessments.

A second important feature is the MA's emphasis on strong two-way partnerships between industry and academia. For students, the integration of an industry partner (in Falmouth's case, we worked with the Head of Multiplatform at the BBC) ensures up-to-date knowledge, professional approaches and insider insights; for the partner, participating in a short course offers stimulating, fresh perspectives.

In this demonstration we will outline key lessons that we have gained through this project – including pedagogic design (course content and structure), interface design (instructional interfaces) and workflow design (production processes). We will also discuss challenges faced – for example, responding to the needs of non-traditional learners, building strong online learning communities within short time frames and delivering courses in partnership with non-academics – which will be familiar to many colleagues currently working in this field.

SALUTIS – A NEW METHOD OF TRAINING STUDENTS IN GENERIC SKILLS

Lena Kransberg, Lasse Bourelius, Blekinge Institute of Technology, Sweden

In the autumn of 2009, Blekinge Institute of Technology (BTH) and its School of Health Science started a new BSc programme entitled “Public Health Science with an Emphasis on Community Planning”. The planning of the study programme included not only the objectives and contents of the courses, but also a focus on generic skills in accordance with the intentions of the Bologna process. In order to create a focus on some of the generic skills and enable students to practise them, BTH created the open Web magazine *Salutis*, where students actively engage in writing, publishing articles and contributions to discussions, as well as commenting on and reviewing each other’s texts. The articles which they write on public health and society are in the popular science genre.

At BTH, generic skills are included in every syllabus. The study guide for every course presents the generic skills which students are to be trained in. Students’ generic skills are not assessed in exams, but they are utilised to achieve the objectives of the courses. Generic skills are parts of the courses in which students require training, e.g. writing and presentation skills, evaluation of sources, and ICT competence. The same generic skills appear in several courses, with the aim of creating progression.

In the Web magazine *Salutis*, students write about some topic covered by the objectives of a course. When they are going to write their article, they must search for sources relevant to the area which they are dealing with. They have to evaluate the sources and present them in a way required by the assignment in question. The Web magazine belongs to the study programme and only students write in it, but it is openly accessible to all those who want to read it. During the whole of 2010, there was a steady increase in the number of readers

Below each article, the reader has the possibility of writing comments. Some of the courses include this as one of the prescribed tasks. It sometimes happens that an external reader chooses to write a comment. To ensure and maintain the quality of the comments, they must be approved by a moderator before publication.

The courses in the study programme include segments where the students have to write an article. The focus of the article can vary, since the students are to be trained in different generic skills. The actual writing is a skill which they are trained in, as well as evaluation of sources, adopting ethical positions, etc. This constitutes part of the students’ training in academic writing and creates progression in their writing skills.

One assignment may concern the description of an area of particular interest, a second assignment may concern reviewing a polemical article or writing one’s own polemical article, and a third assignment may be the presentation of some social change for the population. At the same time as students practise their writing skills and other generic skills, they gain knowledge in different areas of public health science.

By examining and commenting on articles written by others, students are also trained in criticism and in understanding their fellow students’ mode of thinking and how they have written their articles. The students upload their articles themselves, but they are to be approved by their teacher before publication. The teacher reads the articles, examines their contents, and checks the sources. The students receive feedback on the articles and correct any possible errors. It may be a question of the language of the article or an unclear or dubious source. When the article is corrected, the student uploads it again and the teacher completes the publication.

We will demonstrate *Salutis* by showing examples from the Web magazine and by showing how students upload their material online, how discussions are conducted, and how teachers approve and publish articles. As well as seeing the final result, the audience will have the opportunity to acquaint themselves with the process of article approval, as well as image and text processing.

Our purpose is to show the audience how students can be trained in generic skills with the help of a technical solution and to discuss the importance of training students in this way. The audience will be given the opportunity to see how *Salutis* works in practice, to participate in discussions, to exchange ideas with us, and to provide us with feedback.

ELECTRONIC PERFORMANCE SUPPORT SYSTEMS AS SMART E-LEARNING SOLUTIONS

Ari-Matti Auvinen, HCI Productions Oy, Finland

Introduction and rationale

In modern work environments – and in particular, in work requiring high professionalism – we have identified the need to provide for co-workers easy-to-use electronic resources with an easily usable interface to support their daily work. In many professions it is paramount also to provide such (electronic) resources, which enable an individual or a team to access all required information, tools and training simultaneously – and thus enable and support the individuals and teams to undertake their work more effectively and correctly.

We can see a clear shift in training approaches from “just-in-case” training (i.e. training all the co-workers to provide a wide range of competences) towards “just-in-time” training (i.e. training for particular situations once these situations actualise). This shift also indicates that the training provision must be available in a flexible manner with wide support content. It should also be noted that the performance of co-workers can be improved by several means – of which training is only one. Thus also timely information provision, provision of key contacts and experts etc. are of value for the co-workers. The operational objectives of EPSS applications are: a. to create an easy-to-use tool for daily planning, implementation and follow-up activities (also to be used as a daily toolbox); b. to bring all the needed resources for the work to one view; and c. to support the users in deepening their knowledge and skills.

Basics of an EPSS

The EPSS applications bring together the various resources required to support the daily work of individuals and teams. Thus the needed elements are: a. training resources (intensive “learning nuggets”, access to wider eLearning courses); b. information resources (materials on legislation and norms, reference materials, procedural guides); and c. tools and forms (electronic templates, forms etc.). In addition, an EPSS application can also provide information on roles and responsibilities within an organization as well as links to key experts and professionals.

In our experience, the key success factor in creating the EPSS approach is to classify the content rightly, and thus create meaningful navigational structures. This also communicates an understanding to the users what is really essential according to the proper work performance and which elements are supporting the actual work performance. We have used the classification to “must know”, “need to know” and “nice to know” contents.

The “must know” contents address what the users essentially need to know and govern to undertake the given action. This can consist of direct presentation of work flows, required steps for the preparatory work etc. The “need to know” content provides additional routed support, such as case studies of good practices or introductions of available external sources. The “nice to know” contents can be consisting of recommended books and articles widening and deepening the understanding of the professionals or it can be examples from other industries. This “nice to know” content can also include e.g. previous documented, commented cases by the organisation.

In all, the challenge in most organisations is not the lack of content (or documents, if you like) used in EPSS applications – rather the challenge is in providing meaningful utilisation of the existing content in the right context and in organising of appropriate navigation to the right “knowledge elements”.

Although the EPSS approach was been discussed widely in the late 1980s, such applications were implemented only in large organizations. We have seen in practical terms the need to provide various EPSS applications also to a wide range of different smaller organisations to improve their work. According to learning and competence development, EPSS applications provide a novel opportunity to support learning processes as well as good potential to link meaningful learning materials with other related content areas to enhance the performance of its users.

INTEGRATING EDUBLOGS WITH SNS ELEMENTS IN EDUCATIONAL SETTINGS: REFLECTIONS BASED ON SOCIAL CONSTRUCTIVIST THEORY

Yanhui Han, The Open University of China, People's Republic of China

Social software is able to offer emerging possibilities for social interaction in distance learning (Sevelj, 2006 p. 2). In the paper the author offers a reflective account of the uses of blog for educational purposes and aims based on the theory and practice in the course 'Multimedia Design and Communication'. The initial experience of the edublogs.org pushed the author to further understanding of the 'Conventional use', and it also implies to the author that it seems the 'Conventional use' of blog needs to be enhanced for better "facilitation of communities of practice". As a result, the author determined to integrate the SNS functions into the author's blog on edublog.org (<http://hypermedia.edublogs.org>). It is the author's plan to produce an online multimedia course of Chinese Learning pursuing the best uses of blog for educational purposes and aims. Based upon the theory of social constructivism and visual design, the author explored the innovative design of a Chinese Learning Course on edublogs which includes a portal page of 'Learn Chinese', the interactive 'Support' section, and the 'Lesson' section. The studies indicate that the edublogs.org has certain limitations in the "Conventional use" of blog such as lacking better communication and interaction functions especially the synchronous communication ways. Enhanced with SNS functions, the use of Edublogs in designing the Chinese course can facilitate better social interaction and "communities of practice" from the perspectives of social constructivist theory. In addition, the author suggests the Edublogs be improved following blog.sohu.com as a model since the communication, interactivity and interaction there is much better accomplished.

- Enhanced 'Conventional use' of blog with SNS integration
- Social constructivist perspectives
- Brand-new Chinese BSP model inspiration.

"FLECTURES" – BUILDING FLEXIBLE FLASH/MP3 LEARNING MATERIALS FROM NARRATED POWERPOINTS

Bruce Durie, University of Strathclyde, Scotland

Summary

A demonstration is given on how to construct Flash movies and MP3 audio from narrated PowerPoint presentations, using cheap or free, and freely-available, software. This can all be achieved on a desktop or laptop, and the output delivered as an SWF file, a browser-enabled Flash movie, a down loadable playable executable and an audio MP3 file, alongside a printable PDF handout of the PowerPoint slides.

Introduction

The Postgraduate Programme in Genealogical Studies¹ offered by the Centre for Lifelong Learning (CLL) at the University of Strathclyde was originally taught in both Campus and Online (Distance) modes, but with both cohorts of students using the same Virtual Learning Environment (VLE), accessing the same materials and communicating/collaborating with each other. The decision was taken in 2008-09 to stop the on-campus teaching and provide all materials online-only. Nevertheless, we found there was merit in producing an "as-live" version of some of the course materials, in order to provide the "feel" of a live lecture, which can significantly add to the student experience. Rather than using hi-tech recording technologies, expensive technician time and extensive post-production, the task was to achieve the same end using existing technical resources, nothing more complex in computing terms than a standard PC and/or laptop and free or inexpensive software.

This is not a series of videoed lectures, but narrated PowerPoint presentations reconstructed into Flash movies. These can include pieces of video, screencaptures, pre-recorded audio materials etc. It proves to be a cost-effective and pedagogically effective method of producing multimedia course materials. The definition of "cost-effective" used is:

- little or no cash spend (e.g., on specialist software)
- uses existing hardware resources
- made by Course Tutor, with no external staff involved
- no great investment in staff time
- no "buy-in" from students – everything should play on the student's home hardware using free and widely-available software.

Demonstration

Starting with a standard PowerPoint presentation, narration will be added, additional elements imported, and the following formats generated – SWF, HTML, .exe, MP3, PDF. Software to be used:

- PowerFlashPoint²
- Quick Screen Recorder (freeware)³
- SWF FLV to MP3 Converter⁴.

Materials

Examples of completed Flectures will be provided at a web address before the conference. Check <http://www.strath.ac.uk/genealogy> for details.

¹ See <http://www.strath.ac.uk/genealogy>

² See <http://www.digitalofficepro.com/powerpoint/Power-flash-point-converter.html>

³ See <http://www.etrusoft.com/screen-recorder/>

⁴ See <http://www.hootech.com/swf-flv-mp3-converter/>

REALIZING VIRTUAL COLLABORATION THROUGH E-INFRASTRUCTURES A SWEDISH CASE STUDY

Markus Schneider, Karlstad University, Sweden

This demonstration describes a liaison between the national education and research network (NREN) and a national network of educational technologists in Sweden. The Swedish Network for IT in Higher Education (ITHU) promotes teaching and learning through the use of IT. The Network provides a forum for experience and knowledge exchange between teachers and educational technologists at Swedish universities. Since ITHU receives no direct government funding, actual or planned collaboration needs to fulfil expectations for either cost savings or quality improvements or both.

In 2009, the Swedish NREN, SUNET, launched an e-meeting service to all its member organizations in higher education, the e-meeting service being a desktop video conferencing tool accessible through federated authentication. In 2010, the National Library of Sweden funded a project, OER for learning, as part of its Open Access initiative. Partly as a reaction to these events, ITHU initiated two working groups to collaborate on open educational resources (OER) and e-meetings. The aims of the OER project were to raise teacher awareness of the benefits of sharing digital learning resources and to make better use of existing material. As for e-meetings, SUNET hoped to provide a useful and reliable infrastructural service to the whole sector whereas ITHU member organizations hoped to realize benefits from joint deployment. As a result, the ITHU e-meeting group created an OER with instructional material on how to make use of the e-meeting service. A community forum was launched by SUNET. It was also agreed upon to jointly staff a virtual e-meeting support room in order to provide extended support to learners. Moreover, newly gained insights into possibilities and limitations of the e-meeting service let working group members assist the OER project in testing new ways of extending the reach of their seminars. These seminars and a workshop were held locally at different universities but remote participation became a key design feature. A number of advanced blended settings were conducted, culminating in a completely web-based and highly interactive seminar on the use of OER with 205 participants from various parts of the educational sector.

At present, the e-meeting group members plan to collaboratively create an open course on the use of synchronous media. Insights from actual users of the service and the richness of local and subject specific variations used in this particular e-infrastructure will form its basis. A series of web seminars will also be held as a joint and ongoing effort. The OER working group is about to give its OER workshop concept an online synchronous form. As that, it may facilitate to bring together interested teachers from specific subject areas with librarians and educational technologist from different organizations.

The main novelty is that virtual collaboration was achieved at a sector wide level. This seems to be the outcome of the combination of both the technical provision of e-infrastructure and the networked learning approach of the community of its users. Collaborating on common support structures and creating common and open spaces for knowledge exchange are two key ingredients of this approach.

E-meetings and OER are two key subjects in the sustainability discussion. The cooperation between an NREN as service provider to institutes of higher education and sector wide communities of practice is highlighted as a possible way of achieving sustainable solutions.

The resulting technical and learning infrastructures have emerged out of the need to deal with decreased government funding and accelerating technological change. The sharing of educational practices on the use of synchronous tools for learning and cooperation seems to be an essential starting point for further virtual collaboration. This may not only be valid for the promotion of OER usage but also for a number of other areas.

DELIVERING ROBUST LEARNING EXPERIENCES TO LEARNERS WITH LIMITED CONNECTIVITY

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Introduction / Problem

Understanding the relationship between student satisfaction and learning in online courses is a rather straightforward proposition and is fairly well defined in comprehensive program evaluations such as one at the State University of New York learning networks.¹ In this study, key findings related to best teaching practices included a need for: individual instructional design support and technical support, collecting and sharing best practices and resources that support applications in a variety of media.

Other case study compilations of best developmental practices point to students having continued access to learning materials and interaction with instructors as being key to program success.² Within this context, quality is related to how well the instructor is able to adapt pedagogical principles to the online environment. Meta analysis of research in this area clearly illustrates that a sound pedagogical basis is necessary for the course to be successful and therefore be perceived as satisfactory by students.³

However, online learning requires that pedagogy be mediated through a technological middle layer. Within this context, the ability of students to easily login, view web based content, work with and manipulate learning materials is key to success.⁴ As research from the earlier days of e-learning clearly show, when students spend excessive amounts of time troubleshooting technical problems and accessing content, they became discouraged and perceive a lack of quality engagement.⁵

When the above conditions are not met students can experience significant difficulty in working collaboratively with peers, resulting in high levels of dissatisfaction, low levels of learning and low retention rates, and cause dropout rates to be six to seven times higher in online programs than in face to face courses.⁶

From an implementation perspective, one of the major factors impacting students' ability to maintain adequate connections or even connect to the internet on a regular basis. In low income and rural areas this problem is particularly noticeable. In these instances students are rushed to complete assignments without adequately time to contemplate the materials, interact with postings by others students or make significant contributions, resulting in disenchantment with the online learning experience.

Within the last few years, video conferencing programs become significantly more robust through the inclusion of capabilities to include interactive learning models, student note taking pods and repositories for ancillary documents. For synchronous interactions these capabilities have allowed for the creation of dynamic learning environments that project teaching presence and rich activities that allow for higher order cognitive development. However, for learners with low connectivity or who have time constraints that do not allow them to attend synchronous sections, replays or downloads of recorded sessions are the only option. This is problematic in that recorded sessions do not allow for interaction with interactive components or repository materials.

¹ Fredrickson, Pickett, Shea, Pelz & Swan, 2000.

² Akyol & Garrison, 2008.

³ Hitz & Shea, 2005.

⁴ Monolescu, Schifter & Greenwood, 2003.

⁵ Lynch, 2001.

⁶ Boston, Diaz, Gibson, Ice, Richardson & Swan, 2009

Solution

Starting in November, 2010, a team of designers and developers have been working on an application that allows for content and activities from a traditional video conferencing platform to be captured propagated to a thin client that can reside on a student's desktop. The practical application is that any content, including interactive modules, that can be hosted within the synchronous video application can also reside, on a desktop without internet connectivity, for asynchronous consumption. This allows students to view materials, interact with modules, complete quizzes, receive learning repository files and submit assignments while they are without connectivity. When the student acquired connectivity, the information from the local machine updates the server-side implementation and server hosted information is refreshed on the students' local machine. Through this process students can take courses and have interactive experience even if they have extremely limited connectivity.

From a technical perspective this technology works by utilizing the Flex and AIR frameworks. First, information maintained on a server pushed out, through Cold Fusion, to a student's computer, when connectivity becomes available. On the local computer, the content is housed within an AIR container and interactivity is achieved through leveraging Flex.

Flex applications serve as the presentation tier. Unlike page-based HTML applications, Flex applications provide a stateful client where significant changes to the view don't require loading a new page. Similarly, Flex and Flash Player provide many useful ways to send and load data to and from server-side components without requiring the client to reload the view. AIR is intended to be a versatile runtime environment that allows existing Flash, Actionscript or HTML and JavaScript code to be used to construct a more traditional desktop-like program. The differences between each deployment paradigm provides both advantages and disadvantages. For example, a rich internet application deployed in a browser does not require installation, while one deployed with AIR requires the application be packaged, digitally signed, and installed to the user's local file system. However, this provides access to local storage and file systems, while browser-deployed applications are more limited in where and how data can be accessed and stored.

The purpose of this demonstration is to illustrate (through fully functional implementation) how this technology can be utilized to provide rich, interactive learning experiences to users who have been traditionally marginalized by connectivity issues. In addition, it is hoped that significant feedback for improving the interactive components can be discussed with faculty, instructional designers and researchers for improvement of the application in future iterations. Of particular interest to instructional technologists should be the deployment of this type of technology to areas where learners have very low connectivity or access to only centralized points of connectivity, especially economically disadvantaged areas. For learners in these situations the ability to work at their own pace, while accessing rich internet applications, between periods of connectivity may prove to be the catalyst for a major paradigm shift for the way online learning is conceptualized.

OPEN ACCESS WITH THE FEDERICA SYSTEM

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“Federica” is the web-learning portal of the Italian University, Federico II, free and open to all, created to provide unrestricted access to academic knowledge and to respond to one of the most consolidated requirements of the global edge, the sustainability of e-learning projects. The University “Federico II” of Naples, besides being one of the oldest Italian universities, is the first attractiveness for all southern Italian students. The percentage of outstanding students exceeds the capacity of the city and the university facilities are very limited: the university dormitories fail to meet demand, various university buildings are located throughout the area and are sometimes very distant from central services (administration, libraries, computers, etc), and classroom seats are available for less than 50% of students enrolled. To reduce the impact of these problems, many e-learning programs have flourished in different faculties. However, while these separate initiatives have played a key role in raising awareness of the importance of e-learning, the lack of a common platform, and the experimental nature of a lot of these initiatives, has made widespread adoption of e-learning extremely difficult.

The most common approach in university e-Learning projects is to focus on the development of software packages and ICT/Web platforms, leaving out the importance of re-engineering human resources and organisational processes. As a consequence there is a proliferation of very expensive ICT/Web platforms at the forefront of innovation which have neglected to take into account several cardinal points, such as: didactic organisation, human resources and the complete educational offer. As a result, many projects remain at a prototypical stage, simply because they have failed to develop working models that are easy to manage by the main target audience: professors and students. Federica’s development is based on awareness of this issue.

Federica (www.federica.unina.it) is, instead, an initiative systematically and organically structured brought online in 2007, supported by FESR (ERDF) funds of the European Commission and managed by the *Federico II University Information Services Center*. In the framework of the Italian university system, Federica is the only web-learning platform that is completely open access. It is also designed to facilitate access using a very simple interface. The navigation between different faculties, courses, classes and materials available proceeds through an identical logical and graphic format that ensures homogeneity and coherence for all the materials and guarantees equal access for all students.

This choice was made on the basis that separate platforms with restricted access: intimidate students who consider these initiatives as a limit for their freedom; and teachers who have no opportunity to compare the quality and quantity of the content across courses, nor to learn from other teachers. By contrast, an open access model empowers both students and teachers, improving internal cooperation and collaboration, and enabling the creation of joint projects, integrated courses, translated courses, etc. Finally, open access provides countless functions supporting the operation of this very large university, such as: orientation for students; lifelong learning and education for professionals unable to attend the university; learning support for foreign students; internal communication to create a common university culture; and external institutional communication to improve the overall image of the university.

After four years of use, Federica supports over 400,000 visits per month, an average of 10,000 unique visitors per day from 196 different countries. These numbers are clearly related to the fact that Federica ensures an immediate control of all stages of content production and navigation, which is crucial for users with low knowledge of network technologies. The methods of iconographic representation of the academic content and cognitive organization scheme of the teaching materials, designed on the base of students’ common level skills, allow easy and immediate interaction with the lessons. In addition to these developments Federica presents some specific functions (e.g. Living Library, Campus3D) connecting the university courseware units with cultural offerings available on the web, and effecting integration into the educational paths of both primary and secondary scientific sources, experimental research data, and academic production. Federica has inaugurated a new paradigm of web-learning that supports the combination of orienting and teaching with a strong interaction with web resources in an open and inclusive environment. In this presentation we will show you the four environments in which the platform is organized. These are:

Demonstrations

- Courseware: Federica hosts the Federico II courses, presented in the same format, through a flexible and user-friendly interface: syllabuses, lessons, research materials, images, audio and video files, as well as links to web resources. (Currently it is made up of 5,000 lessons, 600 podcasts, 6,000 links, 40,000 images, 700 videos and 3,000 documents.) The contents are protected under Creative Commons License. In the next release of Federica, the English translations of some technical courses will be available, responding to a demand for scientific knowledge from Mediterranean countries.
- Podstudio: Federica's course lessons are available also as podcast files, easy to use on latest-generation multimedia devices, to browse and read the study materials anywhere and anytime. Federico II was the first Italian University to launch an iTunes U channel, with more than 700,000 visitors and 125,000 downloads in only seven months.
- Living Library: is the Federica digital library. A gateway to electronic resources selected and reviewed to facilitate free access to learning materials. An authoritative guide to hundreds of online libraries and archives, journals, e-books, encyclopaedias, and databases aimed at improving information literacy and awareness.
- Campus 3D: Federica is a 3D interactive environment bringing all university buildings together in a virtual square. It is a scenographic representation that reproduces the strong analogy between the virtual and the real world. A multimedia pyramid helps students find their way through all Federica's resources for open access to higher learning. Thus, it is an ambitious pilot project that will provide access to specialised multimedia resources, but it already represents a strong element of recognition for the University of Naples Federico II and for the educational offering of Federica. Campus 3D represents a first step towards the development of immersive environments in which students are able to act and interact with a recreational and challenging space to acquire new experiences. When Campus 3D will be totally complete, it will represent also a useful environment to simulate the laboratory's activities.

SUSTAINABILITY AND VIRTUAL LEARNING ENVIRONMENTS

George Blackwood, C2k, Northern Ireland

Context

C2k is a Northern Ireland regional Project, funded by the Department of Education, whose purpose it is to deliver to schools a high quality, sustainable ICT infrastructure, connectivity and resources. Grant-aided schools receive a core entitlement including networked computers, providing a managed single education local network with access to email and the Internet; a wide range of tools to facilitate the development of on-line teaching and learning; and access to a Virtual Learning Environment (VLE) – “LearningNI” Access to LearningNI is only through an authenticated active directory. Guest users e.g. schools from other countries, must be invited by an existing body or school. It is available via any internet at anytime.

How can the use of ICTs in learning support the management of sustainability challenges?

- Teaching and Learning
- Teacher Training and Professional Development
- Innovations in institutional structures e.g. Area Learning Communities
- Collaboration between Education Boards, Schools and Colleges and Non-Government Agencies (NGO's)

Smart e-learning solutions in support of increasing resource effectiveness

Through the use of LearningNI schools, Educational Institutions and NGO's can vastly reduce the material and fuel costs by hosting digital resources and therefore benefit from efficiencies in

- Printing and photocopying
- Reduction in use of paper and notebooks
- Storage resources, equipment and space
- No transport, teacher cover, heating and food costs when delivering Teacher Professional Development

Virtual mobility and collaboration in the web 2.0 environment

Because LearningNI is web-based, all pupils and teachers in Northern Ireland have 24/7 access, extending learning beyond the walls and time constraints of the school day. Increasingly, the ability of devices which can access the internet has meant that LearningNI can be accessed by game consoles and internet notebooks. Learning can now take place at home, the library, the Community Hall, in fact, all over the world!

Online collaboration is achieved through Learning Areas (Courses) which provide:

- Downloadable resources
- Learner upload spaces
- E-mail
- Online discussions
- Blogs and Wikis
- Video Conferencing

What to do in order to sustain the culture and community of e-learning?

LearningNI provides learning through technology which engages our society, particularly young people. New institutional structures where pupils may work between a number of schools can do so without leaving their own school. Support Service (e.g. Library Services) and NGO's (e.g. Museums, Sustainable Education Groups) can enhance and broaden the learning environment. Parents can view and share their children's learning. Our data shows that learners access the VLE outside of normal school hours, over the weekend and even holiday times.

VIRTUAL SOIL SCIENCE LEARNING RESOURCES

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Introduction

The Virtual Soil Science Learning Resources (VSSLR) web site (soilweb.ca) is a suite of knowledge-rich, accessible, shareable online learning resources for the study of soil science and the basis for the beginning of a distributed community of practice in soil science. The online resources, created at several Canadian universities, illustrate soil formation processes, soil identification and classification, the impacts of land-use management practices on soil quality, and provide basic descriptions of key concepts in soil science. The web site supports a distributed community of practice in soil science that involves students, professors, research scientists and natural resource professionals in diverse areas such as forestry, agriculture and land-use planning. VSSLR represents a groundbreaking innovation in learning and communication that promotes and encourages a critical understanding of soil science among soil scientists in Canada and also around the world.

Short Description and Significant Features

Canada is characterized by the greatest variety of soil types and landscapes. By taking advantage of the variety of soil landscapes, the soil resources web site exposes learners to different soil types, landscapes and environments and a variety of soil management and sustainability issues. Learners are able to access information from various geographic regions, interact with other learners and professionals in the field and generally to broaden their learning perspectives. These online learning resources have a number of practical implications to the study of soil science including:

- open accessible information from a diverse group of experts
- a shareable learning resource for instructors and professionals
- collaboration and sharing knowledge between experts and learners
- more informed decision-making
- mobile accessibility, and
- sustainable soil management.
- opening new avenues for learning and communication among members of the soil science community of learners, professionals and academics
- appealing to multiple learning and teaching styles and approaches
- teaching students communication and networking skills
- connecting soil related research and teaching projects to a broader audience
- expanding educational resources for K-12 teachers to present soil science to younger audiences
- raising the profile of soil science among university students enrolled in various natural resource sciences and general science.

The project design centres on the visually engaging “soilweb” landing page (soilweb.ca) that acts as a dynamic portal or hub through which users find and access the various online learning resources and learn to communicate and connect to the soil science community. The VSSLR was designed for usability by means of concise descriptive titles, an easily scanned layout and interactive buttons that support quick and easy navigation for the user to find the appropriate area of interest. The website is accessible through broadband internet, which is available at most public and private institutions, and even with the video content it is reasonably accessible to users on slower bandwidths.

These teaching resources are often applied in blended learning situations where they are used not only by distance education students but by on-campus students as well. Overall, the student response has been excellent. To our knowledge, these teaching tools are currently used by at least 1,000 students/year at 11 Canadian and European universities. The tools are used in distance education courses, on-campus lectures and as off-campus resources for students and practicing professionals. It marks the beginning of a process to create a suite of knowledge-rich, accessible, shareable online learning resources for the study of soil science and the development of a distributed community of practice in soil science in Canada.