

Network-blended education of tomorrow

Project proposal

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Abstract: The introduction of ICTs is causing considerable tension between systems like those of education, health and democracy and what is happening outside those systems. This tension has to be resolved. Therefore educational goals need to be redefined. In redefining the goals of education changes need to be directly related to competencies and how the acquisition of these competencies can be integrated into the curriculum and the evaluation system. This project aims are: creation of new pedagogical strategies; creation of international communities around these new strategies in higher education and upper secondary education; creation of new principles and methods; creation of knowledge building and exchange processes.

Key words: higher education, international communities, knowledge building, knowledge exchange, pedagogical strategies, redefinition of education, upper-secondary education

INTRODUCTION

The introduction of ICTs is causing considerable tension between systems, like those of education, health and democracy, and what is happening outside those systems. Therefore one of the major challenges of the Knowledge Society is institutional change. Institutions are the building blocks of society and, as such, the future of society depends on our ability to adapt and/or develop institutions that structure and give sense to our lives. Much important learning takes place outside the educational systems. This situation fundamentally challenges the pertinence of institutional based learning. Educational institutions have considerable difficulties reconsidering their relationship with learning taking place outside their own limits.

The tension described has to be resolved. Therefore educational goals need to be redefined. In redefining the goals of education changes need to be directly related to competencies and how the acquisition of these competencies can be integrated into the curriculum and the evaluation system. This area represents one of the major axes of work for the future: defining goals, devising new structures, identifying competences, elaborating ways of developing these competencies, creating suitable forms of evaluation.

PROJECT AIMS

- Creation of new pedagogical strategies, especially in developed countries, but also sustainable in developing countries;
- Creation of international communities around these new strategies;
- Primary target groups: higher education and upper secondary education;
- Creation of new principles and methods for the exploitation by the members of an educational community, irrespective of age, of the skills, resources, facilities, and so forth;
- Creation of knowledge building and exchange processes within the local community.

Answers to questions are sometimes available elsewhere, but are not always accessible. The reference here is to the barriers between particular areas of activity, when it comes to the flow of information. This is particularly the case between research and teaching practice. The dynamics of the research context are often such that there is little incentive to communicate results to anyone other than fellow researchers. This situation is unacceptably wasteful. We need a more “ecological” approach to

knowledge and its development. There are often fundamental differences in perspective between researchers and those working in the field, like teachers requiring a considerable effort to establish exchange of knowledge and experience between these actors. A possible answer might lie in some form of “co-learning”.

KEY PRINCIPLES

- Participation of several of the following actors: governments, UN organs and agencies, international/national/regional organisations, international professional organisations, business sector, civil society, academic institutions, and so forth.
- Projects will be directed at practical, real-world contributions to the creation of instances of e-Education, e-Health, and e-Society, especially in developing countries, and not to academic or industrial research or development. The latter may, however, be required for the execution of the projects.
- The “local community” must include balanced representation of all segments of the community, including advocates for the old and wise, the young adults, and the next generation.

NEEDS ADDRESSED

- Improving the fitness of graduates for 21C society;
- Lifelong learning.

PROJECT APPROACH

- Networking of knowledge, access to knowledge, human beings, and objects;
- Blending of ICT with other educational resources by integrating the abstractions of ICT with the principles of pedagogy.

The first step to shaping the modern world is developing a shared vision based on a clear idea of what is happening. The idea of developing a “vision” is the first step towards launching appropriate activities in the so-called “Information Society”, in particular as far as the digital divide is concerned. Note that there is not one “digital divide”, but many. For example

North/South, East/West, poor/rich, men/women, young/old, town/countryside, trained/untrained, ... The aim of having a “shared” vision is above all to promote the transparent discussion of values and goals in a world where much of the driving motivation behind action goes unchallenged and un-discussed.

EXPECTED OUTCOMES

- New model for the role of the teacher;
- New model for the organization and operation of education;
- New basis for the application of ICT in education.

CRITICAL SUCCESS FACTORS

- Access to a number of real institutions willing to undertake this experiment;
- Ability to engage both ICT and teachers to work as a community in these institutions;
- Willingness of educational authorities to recognize the students’ achievement for graduation;
- Willingness of educational authorities and teachers to recognize the value of the new approach.

KEY MEASURES OF SUCCESS

- Recognition by employers that these students are better prepared for entering the workforce;
- Ability of the new model to be reproduced spontaneously;
- Achieving better than the Hawthorne effect.

SCIENTIFIC RESULTS EXPECTED

The scientific result of the project will be a validated theoretical model for the integration of ICT in networked education.

The project should be based on the idea of action research: Integrating development, content, research and use. Following on from the conclusion of the European eWatch project, it is argued that all activities in the education

should be organised around “research communities” involving software developers, content developers, teachers, supporting staff and research workers. From the research perspective this would be called “action research”.

TIMETABLE OUTLINE

Year 1	Establishing working arrangements with a number of institutions.
Year 2	In vitro, small-scale experiments on networked-education and deployment of ICT and other infrastructure; evaluation
Year 3	Small-scale application and development of syllabus for a small number of grades; staff development; creation of international communities.
Year 4	Initial deployment and continued development of syllabus; staff development; international community involvement.
Year 5	Continued deployment and development of syllabus; international community involvement.
Year 6	Continued deployment and development of syllabus; initial assessment of overall results; international community involvement.
Year 7	Continued deployment and development of syllabus; final assessment of overall results; international community involvement.
Year 8	Continued deployment and expansion; international community involvement. ... and so forth.

HUMAN RESOURCES

- 5 researchers in pedagogy (5 academic institutions);
- 5 researchers in ICT and other media technologies (5 academic institutions);
- 5 implementers (5 academic institutions);
- 4 technology operators per educational institution (10 institutions);
- 10 teachers (half time) per institution (10 institutions)

A core group of universities be set up who agree to evolve such a global vision and implement it in institutional strategy and practice. To give body to these ideas and to translate them into concrete actions a North-South twinning of schools using ICTs may be developed with a view to developing a relationship that seeks to avoid “neo-colonialism”. That is to say, the setting up of a two-way exchange of ideas and knowledge that not only respects diversity but considers it as an immense source of richness.

Another action concerns mobilising universities to implement the propositions given here. Universities were chosen because they represent a key step in providing skills and knowledge for professional activities and are relatively close to the professional world. One could argue that the whole education system should be concerned, but universities have greater freedom than schools or colleges in determining their policies and obtaining additional funding and as such are more able to implement the necessary changes. The major question is going to be to what extent existing academic culture and the related ways of working can be modified through a process designed to elaborate a shared vision.

MATERIAL RESOURCES

- Network facilities per year (\$100k/academic-year);
- ICT and media infrastructure per institution (\$100k/institution);
- Face-to-face community meetings (2/year) (\$1M/year).

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BIOGRAPHY

Tom J. van Weert holds the chair “ICT and Higher Education” of the Hogeschool van Utrecht, University of Professional Education and Applied Science, The Netherlands. His main research interest is in Lifelong Learning of professionals and its implementation in Higher Education. Tom has been managing director of Cetus, Expert Centre for ICT-based Innovations in Higher Education of the same university. Before this he was director of the

School of Informatics (Computing Science) of the Faculty of Mathematics and Informatics of the University of Nijmegen, The Netherlands.

Tom has studied applied mathematics and computing science starting his career in teacher education. He has been chair of the International Federation for Information Processing (IFIP) Working Groups on Secondary Education and Higher Education. Currently he is vice-chair of IFIP Technical Committee 3 on Education with special responsibility for TC3 Working Groups. He also is invited expert of the Swiss Academy of Technical Sciences (SATW).

David Wood is Director of ESRC, Centre for Research in Development, Instruction and Training, University of Nottingham. Principal research interests centre on the nature of instruction and learning with particular reference to developmental disabilities such as childhood deafness and learning difficulties. Current work also includes research which brings together expertise in instructional theory, Artificial Intelligence and Human-Computer Interaction to develop new architectures for Intelligent Tutoring Systems and Learning Environments.