Within the EU funded projects, when dealing with e-learning innovations, it has been recognized that three important dimensions always are present: the sustainability of the innovation, its scalability and the transferability to a larger sphere.

Sustainability is meant to be able to continue the work beyond the initial support/funding of the Commission. In general, there are serious doubts about sustainability of individual projects. Many think that sustainability are a matter of economics that e-learning in order to be sustainable should be profitable, but it is not so easy. Furthermore, since technology changes so rapidly, we can barely measure sustainability by how the innovations become adopted by the institution, but how these innovations are able to adapt to or keep pace with technological changes. Sustainability might then be vicarious of further technological and social trends.

How could we approach innovations so that they are sustainable, in order for the projects not disappearing or being just an example of what could have been a promise?

As with respect to scalability, few projects deal with this important issue. One important doubt that is always present in e-learning innovations is if they are applicable in mainstream education, or if they are just ephemeral experiences been surpassed by the next innovation we endeavour. In the former case, maximise scalability would be a substantial part of the implementation, whereas in the latter, it is a minor issue in the research. Another issue might be when can we consider that a project has achieved an acceptable level of scalability.

At European funded level, should we deal with innovations that widen the knowledge base or, should we engage on those that have a possibility for been implemented at a large scale? Are there intermediate strategies?

Transferability can be understood in many ways: in terms of knowledge, learning methodologies, across learning domains and levels, skills, educational systems. For instance at the macro-level, experiences of projects been embedded within a large institutional programme promoted by an institution or by the educational authorities, are scarce. Transferability among educational systems is also complicated. However, any innovative experience that is successful looks always for going beyond the narrowness of a partnership or of an institution. At a micro-level, an example is the positive attitude of students towards ICT, which is clearly positive, for transferability of ICT skills are now seen as vital as more and more important for their professional career.

Still transferability needs strategy and new thinking. How could we define good transferable practice by providing strategies for applying the results in terms of concrete examples and quantifiable research results?

Pedagogical models, methodologies, and teacher training

Teaching within e-learning requires different conceptual frameworks for understanding learning processes and implementing new teaching practices, both in terms of acquisition and transfer of knowledge. While new pedagogical strategies and ICT-supported learning are closely linked, it is not clear which of the two triggers innovation in the classroom. Certainly there is a consensus of the change from a teacher-centred to a learner centred approach – a trend not wholly deriving from ICT use. Also, assessment in e-learning needs an special attention. Assessment approaches range from the dominant positivistic paradigm in pedagogic assessment, to a constructivist-oriented assessment focused on learner-centered and learner-directed
assessment. An example is the electronic portfolio assessment, which is becoming very popular in e-learning.

New teachers (and students) roles emerge in e-learning. One of the key reasons for this is that by knowing the new emergent roles we could talk about a set of competence dimensions useful to develop training programmes. Faculty who engage in the development and delivery of courses at a distance may find that the roles to which they have become accustomed in a traditional university environment have many times changed in e-learning. Such a change will be accompanied by the emergence of new job profiles in the education and training systems.

A consequence of this is that an strategic e-learning implementation plan needs to consider teacher training. This has strong implications on teacher training institutions as their curricula need adjustments so as to be supportive of the complementary role of the teacher to the existence of technology in the school/learning institution. But it also needs a change in the working conditions, since the workload of the teachers is high. A new professionalism need to be defined within the teachers/trainers profession in order for the innovations to be sustainable.

However one should ask himself if these pedagogical and methodologicl approaches are transferable and scalable beyond specific innovations, which are supported and funded, so evolving in very special conditions. Are the e-learning models transferable to all the educational organisations (of similar scope) along Europe? Are the educational institutions keen on establishing innovative pedagogical practices? The management of time, space and social boundaries for introducing new didactical practice is often problematic (especially within the formal curricula).

**Educational policies, innovation, mapping e-learning cultures**

When discussing about innovative e-learning approaches (and projects) which were considered to be successful and adequate for improving education and training in Europe we realise that only few examples were finally considered for final implementation in existing programmes. Cases analysed do not demonstrate yet high relevance on terms of their implementation into educational practice. A possible answer to this obstacle might be, that there is a need to adapt educational systems accordingly, but it has been described that institutions often do not allow the establishment of innovative pedagogical practices since the management of time, space and social boundaries for introducing new didactical practice is often problematic. The space for innovation within the curricula is not always recognisable, since educational institutions seem to be a not-flexible organisation, which constrain sustainability and scalability.

If we want to achieve sustainable results of project outcomes we have to identify the organisational framework and the given needs for implementation. What are the organisational / institutional consequences and to what extent does policy need to take into account the update to educational systems which are flexible enough to adapt to new developments and insights achieved by innovative projects funded by the European Commission? There is little insight given yet concerning the identification of indicators of innovation and their potential effectiveness in educational practice which might ensure transferable results as well at a European scale.

**New Economic Models**

Internet access costs, originally identified as a major hurdle to expansion of eLearning are going down. The marginal costs of internet access for a PC owner have become smaller although they remain significantly higher than in the USA; and they are also much higher for broadband internet access. There appears to be no prospect of a feasible pay-as-you-go-per-use payment model for e-learning because there is no overall successful model of micro-payment on the internet. This
constrains the possible models of financing of e-learning systems. They must either be free to the end user, sold as a complete package, or subsumed within some fee for a larger service. The simplest model is free provision to the end user by the originator through their own web site. In this case continued financial support for some degree of promotion of the service would also usually be required to ensure take-up. If software is provided free to other organisations by the originator some degree of regulation to ensure that the service is passed on free to the end-user might be required. One area of possible growth in free-to-end-user e-learning may be the web sites of national employment services. Universities and other public bodies may make their stand-alone software freely available but will not be able to provide supported tutor-based, mentor-based or forum-style learning systems available on the same basis. Commercialisation of e-learning services seems to require either that the e-learning is sold as a stand-alone package to the end user or that modules or instalments are sold to the providers of e-learning portals or more general multi-use portals who recover their costs by some combination of advertising and subscription charges. The extreme fluidity of the market in web access portals will probably lead to the concentration of commercial e-learning in two kinds of service: provider portals such as America On-Line and Microsoft MSN on the one hand and specialist commercial HR companies on the other. The former would bundle the cost with their overall subscription or would regard it as a loss-leader to attract or keep market share. HR companies would need to target their market very precisely and/or integrate e-learning into personal development and firm-specific competency systems in order to keep their market share. The developers of e-learning software and systems might consider these options at the very beginning of their project and some of our reviewed projects have clearly done so. If they envisage free-to-end-user delivery however, they should specify what kind of body will provide the ongoing support for hosting, accessing and promoting the service. If they envisage commercialisation they should specify whether they are aiming at schools and colleges, HR firms, or the general public, as individual purchasers or via portals, and they should be required to conduct targeted market research in line with these projections.

It is well illustrated within most of the reviewed projects that new cost analysis models are needed which would indicate with some surety the real costs of elearning for the benefit of policy makers, course providers, students and users. Whilst within open and distance learning there is a long tradition of costing underpinned by the desire to reach more learners, it has been noted that the educational climate is such that the cost efficiency of traditional classroom based education, traditional distance learning and the newer networked paradigms needs to be established. Costs are difficult to quantify as there is often disagreement about which costs should be taken into account, reliable data is unavailable because it is not collected in a systematic manner, recorded costs are unstable and evolving and some data is perceived as confidential and may not be made publicly available. Costing activities have a central role in the planning and development of educational systems and so financial and costing schema needed to be partnered to planning documents for effectiveness and sustainability. Across Europe there is little evidence in the literature that this is fully recognised. Only some of the reviewed projects indicated full awareness of the need for new economic modelling for detailed cost analysis of various technology/pedagogy interfaces although it is clear that the development and implementation of automated courseware production systems, automated pedagogical advice systems and automated business systems can potentially deliver huge economies of scale and associated costs effectiveness and so enhance possibilities for scalability and sustainability of elearning projects and programmes.

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