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Innovation and Quality in e-Learning: a European Perspective

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Abstract: This paper presents a new vision of e-Learning and quality in e-Learning based on two main assumptions: e-Learning cannot be seen as a "one-size-fits all" solution as it has as many definitions as the fields and sectors where it is implemented, and to define quality in e-Learning one must consider the influence of visions of stakeholders on quality perception. The paper analyses in-depth the e-Learning territory concept and provides an innovative view on quality approaches for e-Learning as well as a set of recommendations addressing e-Learning stakeholders.

Key words: Innovation, Quality, e-Learning Territories, Visions, Stakeholders
Categories: K.3.1

1 Introduction

There are some positive signs that e-Learning in 2008 is going up again in the priorities' list of the European policy agenda. In the last few years the term was seldom used in policy making and the feeling that something went wrong with e-Learning was (and to a certain extent is still) widely spread –not only among policy makers– but paradoxically the practice of using ICT to support learning processes is more diffused and better articulated than ever before. (For further reading on technical advances in e-learning, please refer to [Bravo, 05; Fernández-Manjón, 07].)

Differentiation is the key word to understand how this is possible. While in the year 2000 e-Learning was perceived as a single mega-trend for education systems and the corporate world, experience has shown that the purpose, the pedagogical models - or better the learning patrimony, the organisation and the economic assumption of e-Learning were very differentiated not only according to the learning sub-system (school, higher education, vocational training, corporate professional development, adult learning) but also according to the visions of the world that those in charge of promoting and designing e-Learning systems had in mind.

Understanding this allows the establishment of a new focus on *how learning and technology could serve innovation* and a new vision on *how e-Learning enables Lifelong Learning and how e-Learning relates to innovation*.

As shown in Figure 1, the "ideal place" for new e-Learning does not seem to be where consolidated knowledge has to be spread –this was the vision of first generation e-Learning that is still explaining much of both the superficial enthusiasm and the subsequent disappointment observed–, but rather where new knowledge is to be developed, where innovation and change objectives are to be shared and achieved in a

participative way. Innovation objectives may be specific to "learning systems innovation" as well as related to broader societal, organisational or personal goals.

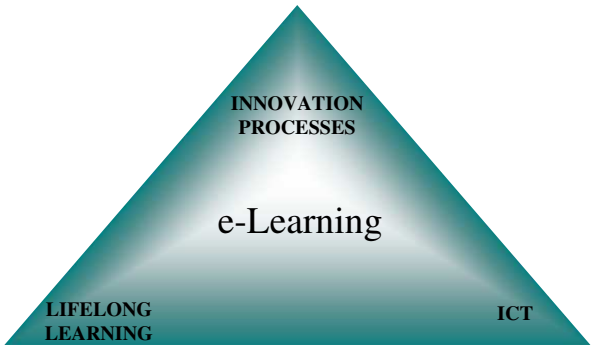

Figure 1: e-Learning ideal place

e-l 2000…	**i-e-l 2010…**
• distributes consolidated knowledge	• generates also new knowledge
• is still e-Teaching	• is owned by the learner
• may isolate the learner	• creates learning communities
• is delivered by a single provider/institution	• is the result of and a tool to support partnership
• ignores the learner's contexts and previous achievements	• builds on the learner's contexts and previous achievements
• discourages the learner's creativity by transmissive logics	• stimulates the learner's creativity by enhancing the spontaneous and playful dimension of learning
• reduces the role of teachers and learning facilitators	• enriches the role of teachers and learning facilitators
• focuses on technology and contents	• focuses on quality, processes and learning context
• substitutes classroom sessions	• is embedded in organisational and social processes of transformation
• privileges those who already learn	• reaches and motivates those who were not yet learning enough

Table 1: e-Learning 2000/2010

Table 1 presents, in a "black and white" caricature that hides the real variety of intermediate situations, the desired, and only partially observable evolution from the "rough" e-Learning 2000 towards "innovative e-Learning" 2010, but does not mean – at all– that "innovative e-Learning" will be the only observable e-Learning by 2010.

Table 1 is useful to detect differences in the direction and particularly in the "speed" of change in different contexts where e-Learning is used, which have different timeframes to implement innovation strategies. Typically, the speed observed is higher in informal learning environments, still relatively high in corporate environments and rather low in institutional education and training.

While in the year 2000 e-Learning was perceived as a single mega-trend for education systems and the corporate world, experience has shown that the purpose, the pedagogical models (or better the learning patrimony), the organisation and the economic assumption of e-Learning were very differentiated not only according to the learning sub-system (school, higher education, vocational training, corporate professional development, adult learning) but also according to the visions of the world that those in charge of promoting and designing e-Learning systems had in mind.

2 The HELIOS e-Learning Territories

Such differentiation in what HELIOS (Horizontal e-Learning Observatory)[1] calls 'e-Learning territories' [HELIOS, 2006] has provoked a perceived loss of meaning of the term, too broad to represent realities which have very little in common, except the use of technology.

Table 2 provides a short description of the 12 e-Learning territories proposed by HELIOS and adopted by the Learnovation (Learning and Innovation) Project[2] as a starting point for a consensus-based definition of a new vision of e-Learning (or technology-enhanced learning) in Europe. This vision shall be able to inspire the full exploitation of its potential to implement lifelong learning strategies and to support innovation in Europe, also beyond the borders of education and training systems.

Territory	Main Features
1. ICT for learning purposes within schools	Use of ICT for learning within school settings. The range of institutions covered by the term varies from country to country. The term *school* refers to primary schools (sometimes divided even further into pre-schooling and junior schools) and secondary schools. The applications of e-Learning within schools can take several forms: activities enabled through ICT conducted into classroom or at a distance (e.g. e-Homework); activities led by teachers or organised by learners' group, activities involving a

[1] The Helios Project was co-funded by the European Commission under the e-Learning programme and aimed at establishing a European Observatory on e-Learning.

[2] Learnovation is a project funded by the European Commission –DG Education and Culture under the Lifelong Learning programme– see http://www.learnovation.eu and http://www.e-Learningeuropa.info/learnovation.

Territory	Main Features
	single classroom or classroom networks, school e-twinning, etc.
2. ICT for learning purposes within Tertiary education	Use of ICT for learning in universities, colleges etc., which may lead to an academic degree, and in research centres. The applications of e-Learning can take several forms, ranging from lectures placed online by a single teacher, to the dual mode or mixed mode (institutions offering programmes for both campus-based full-time students and off-campus part-time students), to the provision of degrees entirely online. Even students or the faculty/teachers or even the university or region/country can lead initiatives.
3. ICT for learning purposes in Vocational Education and Training (VET) institutions	Vocational Education and Training (VET) prepares learners for careers or professions that are historically non-academic, but rather related to a trade, occupation or 'vocation', in which the learner participates (or aiming at). Vocational education is in most cases a form of secondary or post-secondary education. In some cases, vocational education can lead to tertiary education study and an academic degree, however it is rarely considered in its own form to fall under the traditional definition of higher education. e-Learning in the vocational training settings encompasses ways of delivery similar to those endorsed in school education or higher education, or to those endorsed in the corporate sector (i.e. e-Learning chunks on demand/on the job). In any case the most significant *trait d'union* of the majority of e-Learning application into VET is the competency-based approach, directed at current and likely future jobs, duties and tasks within an occupation or industry.
4. e-Learning at the workplace	Use of ICT for learning into the corporate sector and the public administration/agencies. Differences in the scope and in the delivery schemes of e-Learning, between the public and the corporate sector, prevail mainly due to the organization structures and practices and the related human resources policies. In general, e-Learning may take the form of structured training programmes fully online or blended schemes (complemented with seminar/classroom based training), e-Learning chunks on demand/on the job. The driving concerns related to most of these e-Learning offers are the return on investment (emerging also in the public sector), the increased access and flexibility in training delivery, the contribution of the e-Learning in achieving organisational change and fostering knowledge management practices. In this territory the slow emergence of 'communities of practice' approaches is also observable in the most sophisticated organisations.
5. ICT for virtual mobility of learners	Virtual mobility is considered an instrument for internationalization, learning, working, etc., further contributing to the integration of the European area. Virtual mobility has been at the heart of open and distance learning (ODL) projects of the European Commission since the second half of the 90s but its full scale development depends, to a large extent, on the establishment of strategic partnerships among education and training institutions focused on research collaboration and curriculum development. Constituting elements of virtual mobility are: trans-national

Territory	Main Features
	lectures and/or learning materials, cross-border recruitment of students, intensity of communication flows, the international accreditation of learning achievements, the multilingualism, complementary to both physical mobility and conventional teaching [Bang, 2000].
6. Evolved distance education	According to its original definition, distance education takes place when a teacher and his/her student(s) are separated by physical distance, whereby technology means, often in concert with face-to-face communication, is used to bridge this gap. Distance education programs can provide adults with a second chance at a college education, reach those disadvantaged by limited time, distance or physical disability, and update the knowledge base of workers in on-the-job training schemes. The evolution of distance education is mainly featured by the wide adoption of ICT, as delivery means (by the 'traditional' distance universities and distance learning organisations), as well as at the institutional level, through the 'birth' of a new generation of organisations exclusively offering distance and open education, in particular at the university level (e.g.: Universitat Oberta de Catalunya, UOC).
7. Training of teachers and trainers on (and through) e-Learning	In the foreseeable future teachers and trainers will make even more use of ICT for professional activities including lesson planning and preparation of didactic materials, recording learning progress of the students and other administrative tasks, as well as their own professional development and continuing education. Many governments are investing in preparing teachers and trainers for a 'technologically rich' future: enabling them to acquire proficiency in using technology for education purposes and also challenging their pedagogic practice.
8. Individual development through e-Learning	Individual development through e-Learning includes 'home learning' as a whole, ranging from education to training related activities, but focuses on non-formal and informal technology enhanced learning activities not necessarily mediated by traditional E&T institutions, under 'Lifelong Learning' (LLL), social inclusion and e-Inclusion perspectives. The relation of individual development and e-Learning reflects therefore the integration of the 'e'-component in individual daily life processes within wider societal aspects aiming at individual development and enrichment, personal growth and active citizenship.
9. Virtual Professional networks	A professionally oriented virtual community is geared towards professionals and/or facilitates the dialogue on professional issues. Professionals participate in this type of communities, in order to contact each other and exchange information with people outside their own team or organization who require similar information to carry out their own (professional) duties. In these communities learning is sometimes intentionally generated in order to achieve professional development goals (although non professionally related learning might be a side effect).
10. Inter-organisational development	Inter-organisational development can be described as a cooperative relationship between organisations that relies on neither market nor hierarchical mechanism of control but it is instead negotiated

Territory	Main Features
through e-Learning	in an ongoing communicative process. Collaboration between organizations has come into focus in recent years with the recognition that success in a global economy comes from innovation and sharing of ideas. The more change there is in its environment, the more connections an organization needs with the outside world. e-Learning, given the networking possibilities that it enables, is increasingly used for the purpose of inter-organisational development.
11. Non professional e-Learning communities	Non-professional learning communities can be found, for instance, in the areas of E&T, if learning is shifted to the 'virtual space'. They can be created by training providers as a complement of a course or by grassroots initiatives due to a common personal (non-professional) interest. Their learning purpose is explicitly perceived and agreed by all members of the community, although not necessarily leading to formal recognition. Learning taking place in these communities might contribute to the development of skills and competences for the workplace, but also for private and social life.
12. Communities generating e-Learning as a side effect	These virtual communities do not foresee learning as their main objective. Establishing a relationship to other members of these communities is prompted first and foremost by a common interest or common value commitment resulting from either geographical or intellectual proximity, demographic similarity, common hobbies, belonging to the same NGO or charity, to name a few. These communities may take the form of popular chat rooms, blogs, fora where informal learning takes place.

Table 2: Main features of the e-Learning territories

e-Learning territories are the meta-contexts in which different innovation aims and paradigms are associated to the use of ICT, for learning but –more and more frequently– not only for learning. New learning practices are taking place without a clear separation from working processes, social aggregation and leisure activities. To a certain extent this is also happening within formal learning environments, such as schools and universities, but is normally ignored or not given much importance, when it is not treated as 'intrusion' of improper activities into a serious educational environment.

This new vision of e-Learning as a complex phenomenon (differentiated not only according to the learning sub-system but also according to the visions of the world that those in charge of promoting and designing e-Learning systems have in mind) has severe implications on the concept of quality in e-Learning as well.

3 Implications for Quality in e-Learning

According to quality and evaluation research there are many possible dimensions or levels to be taken into consideration when dealing with quality of e-Learning. Ehlers suggest five levels or sub-processes [Ehlers, 2004]: context-quality, structure-quality,

process-quality, output-quality or impact-quality. Other scholars make a distinction between two core function areas: services (like administrative activities of E&T providers) and education [Srikanthan, 2003]. Other make a distinction between the learning sources (encompassing all the sources from which the learning takes place: learning material, infrastructure, teaching and supporting staff), the learning processes (guidance, design, delivery and evaluation of learning) and the learning context (the environment in which learning takes place) [Parker, 2003].

The analysis of state of the art of the debate on quality in e-Learning shows different recurrent factors/elements:

- Quality seems to be in the eye of the beholder. The way in which stakeholders approach and see quality in e-Learning is different. The difference emerges not only between education and industry sectors, but among the stakeholders belonging to the same sector [Boonen, 2005].
- Quality is a concern for all the stakeholders. The development of quality in e-Learning is a long-term strategy/objective for stakeholders, especially those involved within education and training institutions if they are going to be able to offer added value to learners and citizens. For best effect, quality needs to be inherent and designed into a process rather than applied after the process has been developed.
- There is a diffuse perception about lack of quality of e-Learning provision [Massy, 2002]. Despite ever increasing focus on the assurance of suitable quality input there exists a great variance in the observed quality levels of available courses and resources. Indeed the ever increasing volume of available material is not readily matched by available quality levels.
- The focus of existing quality initiatives/approaches/strategies/frameworks diverge. It ranges from e-Learning materials to services, from the user perspective to that of institutions with some specific actions addressing both regional and societal dimensions[3]. The different approaches rely on quality concepts that vary in their scope and goals: excellence, fitness for purpose, conformance, performance, re-usability, user satisfaction, personalisation, standardisation, innovation, human-interaction, etc.

Currently there is a significant number of initiatives driving discussions and aiming at consensus building as regards quality in the new learning technology systems and the emerging learning processes, required to support the developments in the Information Society. These initiatives have originated from the need to establish a comprehensive framework for making judgments about the inflows and outflows of the recent, and sometimes innovative, ICT-supported learning processes (what we are calling e-Learning), and have established working groups and discussion fora, which are trying to consolidate the various approaches and provide a common framework of understanding about quality in e-Learning, mainly addressing –either in an explicit or

[3] In this respect is worth mentioning the four European Quality projects (SEEQUEL, SEEL, EQO, and QUAL-e-Learning) supported by the European Commission (DG Education and Culture) within the e-Learning Action Plan that focused on the quality of e-Learning from different perspectives.

in an implicit way– the needs of intermediaries of learning, namely the teachers and trainers as well as the policy makers.

Despite the effort, the different visions and perspectives on quality and the variety of existing approaches have shown the complexity of the quality concept and the multiplicity of "heterogeneous voices" in the e-Learning arena.

The reality shows that quality is linked to individuals' visions, perspectives values, roles, contexts, and that a "one size fits all" model for quality does not exist.

There is no simple definition of quality in e-Learning and any definition we might wish to consider runs the risk of constraining people vision of what quality means and its significance in their particular context.

4 Why Quality in e-Learning is not a Unified Concept?

It is important to introduce the approach, the reflection and the outputs achieved in the *SEEQUEL project*[4]. The driving objective of SEEQUEL was to reach consensus on a comprehensive analysis framework, encompassing the different "quality cultures", that are representative of the interests and long-standing priorities of the various user groups such as industry, academia, professionals, students.[5]

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[4] SEEQUEL project was supported by the European Commission (DG Education and Culture) and coordinated by the MENON Network, which aimed at building dialogue around the issue of e-Learning quality among all the stakeholders involved in the e-Learning discourse.

[5] The partnership represented in itself the dialogic principle of the project: if one of the main problems of e-Learning quality is the difficulty of different approaches and visions to talk to each other, having in the same project some key players of the industry world and some highly representative bodies from different E&T settings is, by itself, a necessary as well as an unusual starting point. The e-Learning industry side is represented, in the project consortium, by the European e-Learning Industry Group –ELIG and on the education and training side, SEEQUEL has gathered some key players of the e-Learning fields, Cedefop– the European Centre for the Development of Vocational Training, is the EU's reference centre for vocational education and training. EIfEL (European Institute for E-Learning) is a European professional association dedicated to the support of the continuing professional development of individuals and the transformation of organisations who wish to enter into the knowledge economy and society. The European Distance and E-Learning Network (EDEN) is the most comprehensive European association in open, flexible, distance and e-Learning, aiming to foster developments in this constantly evolving field through offering services in a non-hierarchical manner. EuroPACE is a trans-European network of universities and their partners in education and training, i.e. private enterprises, regional and professional organisations and public authorities. ESIB –the European Federation of National Unions of Students– is the umbrella organisation gathering 50 national unions of students from 37 countries and representing over 10 million students. Two UK universities: the University of Edinburgh and the University of Reading.
SEEQUEL coordination was carried on by MENON, a European research and innovation network which is running a number of observation and stakeholders' analysis activities, concerning the developments in e-Learning across the board, with particular attention on the issues of quality, and their long-term perspectives. MENON comprises five expert organizations in the fields of e-Learning as well as innovation in education and lifelong

The creation of a conceptual framework trying to integrate in a single structure the very different values and criteria that lie behind the different approaches to e-Learning quality was undertaken in order to identify and collate all the quality concerns coming from the different stakeholders in relation to the elements of an e-Learning system/experience. To this end, the resulting framework can be used as a "universal lens" that empowers any user from any education and training setting to look at e-Learning quality with his/her own eyes and at the same time to be aware of how other people view the concept of quality.

The SEEQUEL Quality conceptual framework graphically presented in figure 2 below focuses on the stakeholders and on his/her perception of quality, and attributes this perception to three dimensions that correspond to every user:

- the Sector to which he/she belongs (school education, university, Vocational Education and Training –VET–, industry, etc.),
- his/her Role into the sector (e.g. inside school: school teacher, school pupil, school parent, school administrator),
- and the users' Vision of the world.

This third element is the most innovative aspect of the SEEQUEL framework, and allows justifying the fact that not all the teachers have the same understanding of e-Learning quality as concerns Learning sources, processes and context, as not all the university managers do, and so on.

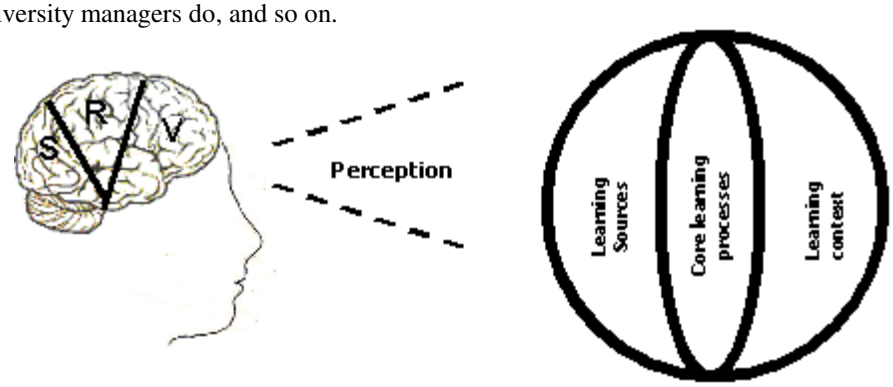

Figure 2: Quality perception

It is assumed that the perception of quality is influenced not only by the sector, role and value one has but also by their "visions of the world".

Six visions of the world [Boltanski, 1991] are introduced in Table 3 below, each one linked to a set of values and to a specific view on e-Learning:

Every view of e-Learning quality, as well as every approach, is legitimate because it is grounded on individual visions and values. No one single vision can be judged as the best one through which to describe the concept and people can subscribe to more than one vision at the same time.

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learning, namely: FIM NewLearning, HUT Lifelong Learning Institute Dipoli, Lambrakis Research Foundation, Scienter, Tavistock Institute of Human Relations.

Vision of the world	Reference Values (on which also the concept of Quality is based)	e-Learning is perceived as…
World of Inspiration	Singularity, difference, innovation, originality, irrationality, imaginary, spirituality, unconscious, chance.	A huge opportunity to open up curriculum boundaries and to generate new knowledge and content through grass-roots energy mobilisation.
Domestic World	Confidence, responsibility, merit, respectability, convention, dignity, tradition, hierarchy, rank; parents, children, generation; rules and confidence, principles; harmony; the "natural"; the duty.	A potentially dangerous development that needs appropriate legislation, quality control, protection of young learners and a high level of structuring of learning paths and activities before being considered as a serious complement to traditional teaching methods.
World of Opinion and Image	Image, reputation, fame, success, honour, acknowledgement, visibility, audience, credibility, identification.	A recent development in the education and training area, that should be trusted only when proposed by a well-established organisation which could provide prestigious titles.
Civic World	The general will, the common interest, generosity, self-abnegation, sacrifice, pride, the group, collective action, collective entities (ideas, values, symbols and institutions).	An interesting opportunity to develop community-based learning, to give access to learning opportunities to people who would be excluded. BUT ALSO A risk of de-contextualising the learning experiences through the dominance of global providers.
Merchant World	Wealth, money; variety of choice, business, fair deals, good deals, bargain; interest, attentions to others; contract; competition, freedom.	The way to maximise the access to learning opportunities and to minimise the costs of both producing and purchasing learning. An opportunity to challenge conservative education and training systems. A new opportunity to develop new services and contents for a potentially huge market.
Industrial World	Progress, future, functionality, efficiency, optimality, performance, productivity, professionalism, reliability, far-sightedness, system.	A modern and efficient way to rationalise provision of education and training, guaranteeing standard quality and seamless access. A way of facing huge training needs in a short time and without depending on variable quality teachers/trainers and organisational constraints.

Table 3: Visions of the world

Quality depends on the vision of the world: in other words quality depends upon the viewpoint of the observer. If you are a user of e-Learning materials you will have a view on what is perceived as quality. It will probably have a lot to do with the fitness for purpose and the actual experience encountered in using the materials. A teacher will have one view of quality and the student may have another. The designer of the e-Learning experience will perceive quality as a complicated function of the visual experience and the degree to which the learning objectives are achieved by the type of learner for which the experience was designed. The materials may contain graphics and video sequences, animations and simulations all of which will have associated issues of quality in their preparation and use. In general there will be many

people involved in the development and delivery of learning. Each will have a defined role and each will contribute to the overall quality of the experience. In other words the perception of quality in e-Learning will be dependent on the viewpoint and role of multiple stakeholders [Baker, 2004].

Territory	Concepts and criteria of quality
ICT for learning purposes in schools	Customer satisfaction, curricula integration, educational value and use of learning services, user-friendliness and usability of resources.
ICT for learning purposes in Higher education	Material/content is scientifically state-of-the-art and maintained up-to-date, prestige and recognition of the authors, accreditation.
ICT for learning purposes in VET institutions	Support to contextualisation, quality of the product, clearly explicit pedagogical design principles appropriate to learner type, needs and context, high level of interactivity.
Learning at work (work based e-Learning)	Content of the programme and the quality of resources, accreditation system for centres to deliver their qualification programmes, relevance and integration to work processes and working contexts.
ICT for virtual mobility of learners	Personalisation of the content of the e-Learning programme and the quality of resources, access to learning material and support in different languages, international accreditation of learning achievements.
Evolved distance education	Content of the programme and the quality of resources, competence and expertise of teachers and support staff, accreditation system for centres to deliver their qualification.
e-Training of teachers and trainers on (and through) e-Learning	Availability of support, task based and problem solving oriented approach, possibility of interaction, mechanism of reward, document and valorise e-Learning experiences.
Individual development through e-Learning	Capacity of selection and management knowledge and possibility to document and valorise learning processes and outcomes.
Professional networks on-line	Relevance to working practice, international profile of the network, frequency of the exchange of information.
Networked inter-organisational professional development through e-Learning	Conformance (i.e. compliance with standards), interoperability, standardisation, provision of scalable integrated learning services, knowledge sharing mechanism and inter-organisational processes.
Non professional virtual learning communities	Accessibility by different target groups in particular the ones have been excluded before, low-cost, support to individual path, availability of support mechanism.
Web-communities generating learning as a side effect	Mechanisms to valorise incidental learning, accessibility by different target groups in particular the ones have been excluded before, low-cost, support to individual path.

Table 4: Characteristics of the e-Learning territories

5 e-Learning Territories and Quality Visions

Linking the differentiation in e-Learning as such and the differentiation in quality perception leads to table 4 above, exemplifying the main characteristics of each territory and their relation with the issue of quality in e-Learning.

6 Conclusions

The proposed approach implies the need for every institutions/organisation/company working in e-Learning to:

- have a clear and shared "own vision" of the quality of learning. This means self-analysis and positioning each organisation within the quality discourse.
- become aware that its own vision of quality is not the exclusive one and the various stakeholders can have a different and rightful visions. This means understanding that in approaching "quality" a subjective and an objective component coexist and the former has to be taken into account.
- make an effort and start a process for understanding the different view points that the players/actors involved at different levels may have. This means that only an open minded dialogue and a receptive position can be suitable to support the process.
- realise that the different viewpoints on quality are key factors for choosing and defining a quality strategy and policy. This means that any quality strategy should take into consideration the multiperspectives and multistakeholders dimensions by understanding what the involved parties consider relevant in defining quality.
- understand that there are objective criteria for defining quality (can someone disagree that: accessibility, cost-effectiveness, coherence of the experience with the purpose, scientific correctness of the contents are not valid criteria?) but not everybody will attribute the same importance to the same criteria.
- assure that the quality strategy which will be adopted is the results of a negotiated processes which has taken into consideration the different perspectives and has clarified on which components of the learning experience is focused.
- avoid reinventing the wheel but benefit of, if possible, the existing quality approaches and tools. This means that after one has defined the own vision of quality and the approach to adopt, the organisation must verify that are available tools and procedures that allow implementing the approach chosen.

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