Managing eLearning quality in the practice

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eLearning: from pioneers to quality

Hamlet's doubt about "to use or not to use" information and communication technologies (ICT) in education is gone. That was no easy work, and it wasn't made easier by emphatic marketing-oriented messages or by the promise that technologies would be the magic wand to make higher education better. Once it was clear that technologies – unlike king Midas – do not turn all they touch into Harvard or Stanford and that they do not curse their users, all institutions have begun to use them at different paces and following different paths. And as it turned out to be, the real challenge is integration.

The emergence of quality as key issue is a clear indicator of real growth (Cantoni & Succi, 2003): from Hamlet's doubt to the first trials, and from that on to a continuing process of integration into the fabric of academic life. In the last years, we witnessed a rapid development of eLearning activities in European universities, as well as the launch of national support programs in most countries (Bates, 2001; Van der Wende & van der Ven, 2003). There is a large number of studies on the evolution of the higher education system in Europe and worldwide (cf. De Boer *et Al.,* 2002) and most of them try to identify the role of eLearning, its opportunities for development and main trends (Coimbra Group, 2002; Collis & Van der Wende, 2002).

While at first the attention of researchers was captured by the issue of effectiveness of the use of ICT, by comparing "traditional" courses with courses using them (Phipps & Merisotis, 1999), more recently it is becoming clear that the real point is not whether eLearning is effective, but whether it is efficient, and under what conditions. Once universities focused on the integration issue, a different trend emerged. There is no unique recipe for eLearning implementation at all sites: each time it is necessary to assess the opportunities and weakness of new technologies in that peculiar educational context. Consequently, a crucial and more promising research area seems to be that concerned with teaching and learning quality. The problem of using eLearning or not is an old one – what is at stake for those working in eLearning is how to implement it in order to offer a higher quality learning experience (Phipps & Merisotis, 2000).

However, quality control is a cost, and might be a huge one. Most of all, such cost can be perceived as *external* to the project – i.e., it does not bring and product or direct benefit to teachers – and its size can hinder its application.

This chapter presents a lightweight method for managing quality throughout the eLearning design and development process in a sustainable way. While the method emerged from the practice of a small but busy eLearning support unit in the academic setting, its main features are generalizable also to different settings. The next section provides a synthetic definition of quality, useful in order to understand the specific feature of the method presented afterwards. Section 3 reports the results of a benchmark study, in order to assess the current situation of eLearning quality evaluation in the academic setting. The method is presented in section 4 and is followed by a case study in section 5. Finally, section 6 compares the method with other quality evaluation systems.

Quality definitions, perspectives and strategies

Quality issue is not a new issue in the academic agenda. Since the foundation of the first universities in the Middle Ages in Europe, their mission has been understood as to offer high quality teaching and learning experiences (Vroeijenstijn, 1995). eLearning has just pushed the discussion forward. According to Barnett (1992), the debate depends on the modern *quality gap*: the increasing number of students, the widening offer of curricula and new education opportunities (due also to ICT) carried out with unvaried governmental funds, have pushed institutions to reflect on the quality of their learning and teaching offer. The need of a systematization of assessment and evaluation processes has emerged as a consequence (Maassen, 1997).

Quality is a rather fuzzy concept. Ehlers (2004) proposes to articulate a definition on three dimensions, sketched in Figure 1: (a) different meanings of quality; (b) different actors' perspectives; and (c) different levels of quality.

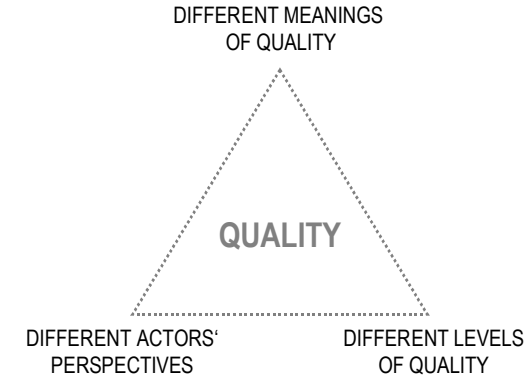

Figure 1 - Multiple perspectives on quality in eLearning (adapted from Ehlers 2004)

Meanings

The meaning of quality is related to the context and to the object that should be "of high quality". Exceptionality, perfection, the achievement of goals, the cost/benefit ratio or change are all possible facets of a cluster of meanings. For a service, such as a travel agency, quality will be examined based on customers' expectations: high quality will be that of an exceptional service that no other provider can guarantee. On the other hand, when it comes to the quality of a product, such as a pair of shoes, quality is the level of perfection, intended as lack of defects. In education, as in many other fields, quality is the achievement of predetermined (learning) goals; in other domains, such as in the public administration, where the money belongs to citizens, quality is measured considering the cost/benefit ratio. Finally, interventions, such as a chirurgical operation, need to result in change and have a positive impact in order to be judged successful.

In education, goal achievement is often the core idea behind both formative and summative evaluations (Morrison, Ross & Kemp, 2003). But when it comes to eLearning, other items, such as Learning objects or digital learning materials, require a product-oriented perspective – this is indeed one of the issues tackled in the method presented below.

Stakeholders

Moving to the second dimension, many stakeholders are involved in a learning activity and each of them is interested in different aspects (and also uses different meanings). A nation funding a learning program through its government expects to have a positive impact onto the society (change). At the institution level, the whole process of a learning activity is considered, from the effectiveness of the enrolment phase to the tracking of learning results, as having an impact on on the institution's reputation (exceptional service). On a narrower scale, teachers and instructors try to achieve teaching goals with cost/benefit logic combining students needs and institutional requests, while student's satisfaction, an important but often over-considered indicator of quality, is a blend of different elements: content meeting expectation, interest, time management, trust, etc. Finally, also parents are very important stakeholders: they are, often, the main sponsor and promoter of students' education.

Levels

Different levels of quality in education are usually referred to Kirkpatrick's Taxonomy (1994). He distinguished four levels of quality that were integrated by Phillips (1996):

1. Reactions: learners' reactions need to be taken into consideration in an evaluation process as a first feedback to the instruction.
2. Learning: learning results can be tracked through different modalities, such as tests, interviews, monitoring, etc.
3. Transfer: in many contexts, such as vocational training or lifelong learning, the point is to make a difference on the working field, transferring new knowledge in the everyday practice.

4. Results or ROI: did the costs really brought what was expected? Especially in the corporate sector, the final outcome of a learning initiative should be evaluated also measuring the Return On Investment in economical terms.

Quality benchmarks and eLearning Management

The intrinsic complexity of meanings, stakeholders and levels connected to quality gave rise to a wide range of measurement strategies, used by private and public organizations (Van Damme, 2002). Studies and researches have produced set of standards, benchmarks or guidelines in order to lead the evaluation of eLearning activities (Massy, 2002; ASTD, 2004).

In particular, a research on eLearning quality within universities was conducted with a mandate of the Swiss Virtual Campus Programme (Cantoni & Succi, 2003; Cantoni, Lepori & Succi, 2003). The study involved the Swiss universities and those in Baden-Württemberg (Germany), Lombardia (Italy), Rhône-Alpes (France) and Catalunya (Spain), with a total of 52 Universities.

The research activities exploited the 24 benchmarks proposed by the IHEP in its study *Quality On The Line* (QOL; Phipps & Merisotis, 2000), commissioned by the US National Education Association (NEA) and Blackboard Inc.

Data suggest that eLearning experiences started in an institution- and teacher-centered frame, and are yet to move towards a more learner-centered approach. In particular, a major effort is to be devoted in designing and implementing evaluation and assessment tools and processes; despite its already decade-long history, eLearning is new to many institutions, which focus more on the creation of a suitable environment than on its evaluation. In any case, as long as this parameter remains neglected, it will be quite difficult to judge the cost/benefit ratio of eLearning initiatives.

This last consideration concerns also the eLearning management issue: as long as eLearning is offered through single and isolated initiatives, the issue of its medium-term economic and organizational sustainability can't be properly tackled. The same aspect is stressed also by the wide dispersion of answers concerning the "whys" of eLearning implementations: no answer was shared by more than 33% of respondents, and those related to costs – hence specifically managerial – scored poorly. Also incentives for professors who decide to enter the "terra incognita" of eLearning have to be better defined, as well as procedures for accreditation and copyright issues.

Results were largely confirmed by a further research extended to all the 77 Italian universities and to European universities of applied sciences (Lepori & Succi, 2004; Cantoni & Esposito, 2004).

A sustainable approach: the eLab approach

In this context, the eLab (n.d.) strived to move one step forward and develop a lightweight method for making eLearning quality evaluation a doable and sustainable daily practice. The eLearning Lab is a joint service of the University of Lugano (USI, Università della Svizzera italiana) and the University of Applied Sciences of Southern Switzerland (SUPSI, Università Professionale della Svizzera Italiana). Currently, the eLab supports 18 financed inter-university eLearning development projects, runs a LMS with about 1000 courses and over 3000 users, offers training to the teaching staff of USI and SUPSI, and carries on open source eLearning application development.

The daily needs of the eLab led to the idea of evaluating the quality of eLearning courses considering its different but intertwined meanings, and in a time- and cost-effective way. The result is a method that focuses on (a) quality of eLearning tools and learning materials as a "perfect product"; (b) quality of an "exceptional" eLearning support service; and (c) quality as the achievement of learning goals with a reasonable cost/benefit ratio. In practice, the eLab methodology is based upon three main pillars: (a) technical quality, i.e., the usability of digital learning materials and of the online environment; (b) integration, i.e., to what extent and how eLearning activities are deployed within the framework of a single course, completely online or blended learning; (c) summative evaluation, i.e., the *ex-post* evaluation of a course at the end of its lifecycle.

In order to properly understand the method in its practical implications, it is necessary to have a glimpse of how the activities are organized at the eLab. This is also paramount in order to understand the case study presented in the next section. However, while the method was specifically developed at the eLab, it is both domain-

independent (i.e., it can be carried out for courses on different subject matters) and LMS-independent (i.e., the evaluations can be carried out in different LMS environments such as WebCT Vista, Moodle, etc.).

Evaluation and fast prototyping

ELearning design and development teams at eLab are usually composed of one instructional designer, a web programmer and a graphic designer, that work closely together with one or more subject-matter expert. Each member of the staff is normally engaged at the same time in three or four projects – the lack of time is constant, so that even if the project plan entails some time for quality evaluation, often this time is devoted to other issues, such as bug fixing. The lack of resources, mainly time, is what made quality a sort of *chimera* at eLab, as in many other similar units. The way out of such a critical situation was the development of a simple conceptual framework implemented by lightweight procedures that make quality evaluation a benefit: the investment in terms of time is rewarded by useful feedback for more successful projects.

eLab teams use the fast prototyping model (Botturi et Al., 2006). Thanks to this model, after the requirements are defined, and an instructional strategy is developed, the implementation starts in quick cycles in order to let stakeholders discuss about real instructional products. In this process, quality evaluation is a crucial step of the cycle, both for measuring the quality of the technical product (e.g., a CD-rom) and its impact during tests with real students.

Steps, Goals and Instruments

The methodology is composed by three different steps: prototype evaluation, process evaluation, and summative evaluation, as sketched in Figure 2. The three steps are closely related but have different goals and exploit different instruments. They also refers to different stages of the design and development process, as shown above: the prototype evaluation refers to the product cycle, while the process evaluation refers to the actual integration of eLearning materials and methodologies in a real course, and pertains to the process cycle. The last step, summative evaluation, takes place at the end of the project.

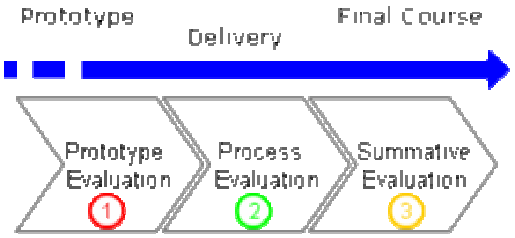

Figure 2 - Overview of the evaluation method

The following paragraphs provide the details for the three steps.

Prototype evaluation: Technical quality

The goal of this step is providing feedback for improving the technical and usability features of all digital resources being developed in the project. The prototype evaluation starts when (a) the prototype is finalized and (b) project partners and team members agreed to have formal usability evaluation, i.e., they are ready to get a structured feedback and revise their plans.

The prototype evaluation consists of two activities:

1. In the *Technical Inspection* an evaluator goes freely through the application following a technical and usability checklist. Her/his task is to comment wherever there is a usability issue. The checklist was created on MiLE+ heuristic inspection basis (Triacca et Al., 2004), and has been adapted to the eLearning environment.
2. The *Expert Review*, which follows the technical inspection, is a kind of "synthetic history of use" of the application. The same evaluator goes through the application following the indications of specific scenarios (e.g., a students right before submitting an essay), and tasks (find the dropbox), always looking for usability breakdowns. S/he reports all issues following a set of instruments: a library of scenarios developed by the

project's instructional designer, the task library, and the User Experience indicators library (Triacca, Inversini, & Bolchini, 2004).

The output of this phase is a structured usability report, containing a ranked list of errors and issues, along with specific proposal for fixing from the evaluator. The idea is that this is a first, product-oriented feedback from an external expert reviewer, who provides input to the project in a structured way, using usability guidelines and principles, and who is helped to get "in the shoes of the students" by the scenarios prepared by the instructional designer.

Process Evaluation: Learning quality

The goal of the process evaluation is to provide feedback on the actual practices of students in the learning environment and to assess its effectiveness in terms of satisfaction and learning. Differently from the prototype evaluations, this steps does not evaluate a specific learning resource or online environment, but a blended learning course as an instructional activity.

The process evaluation starts once all learning materials are finalized as products, the course is ready, and the project partners and team members agree to undergo the evaluation. In practice, during the course supply a bunch of activity are planned. At the end of the process, partners review feedback and make decisions.

The evaluation starts before the course starts, with the instructional designer and the course instructor (or instructors) sitting together and describing the course scenario: who are the students? How will they use the online resources? What are the instructor's expectations? What is s/he planning to do? Right before the end of the course (usually before the final evaluation, if planned) students are surveyed with a standard online questionnaire built around Kirkpatrick's (1999) first two dimensions: reactions and learning (with some hints as to perceived transfer potential). After the end of the course, the instructional designer interviews the instructor(s) once more: what has happened? What did you do? Did the course meet expectations? All this information is put together with the course grades and a standard analysis of log files in the final evaluation report, which is then discussed with the project team. Figure 3 sketches the activity plan for step 2. All activities are supported by standard documents and guidelines that make easy to carry out the evaluation.

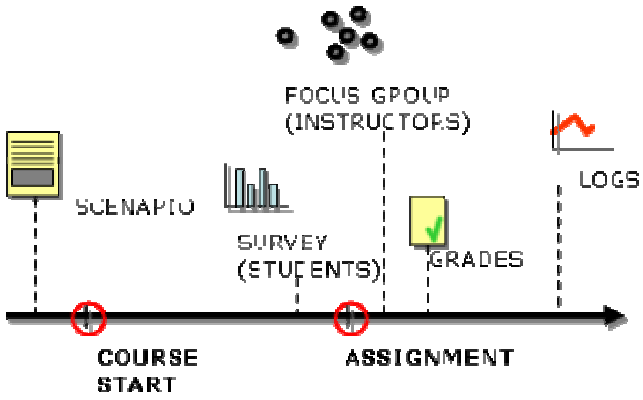

Figure 3 - activity plan during process evaluation

The idea is that the process evaluation can be done more than once, in repeated test phases, and that its results will be incremental.

Summative Evaluation

The goal of the summative evaluation is to set a milestone at the end of the project that summarizes all the evaluation activities done so far with a final picture of the overall quality of the project. The results of this step are useful mainly in order to present the outcomes to important stakeholders – such as the financing body, which can be sometimes responsible for a continuation of the project itself.

The idea is to monitor the final test phase of the project through the same activities describe above in the process evaluation. Its results will then be compared with those from previous process evaluations into a final report targeted not to the project team as feedback but to external reviewers.

Costs

As mentioned above, this eLearning quality evaluation method was developed and tested in a small unit with a lot projects going on at the same time. Time and cost effectiveness were therefore crucial criteria in its development, much more than exhaustiveness or precision: the choice was made for a continuing monitoring of the projects resulting in a set of limited but comparable data, than sporadic more complete but non-comparable observations. In this way, quality can become a useful habit, with techniques that can be improved, refined or expanded when necessary. For example, particularly critical or unclear issues can be further investigated through ad-hoc surveys, interviews, cognitive walkthrough sessions, etc.

This concern has pushed also to define specific roles for each step, and to associate time resources to each of them:

1. The project *instructional designer* is in charge of developing project-specific scenarios and tasks (starting from a generic library) to guide the evaluator in step 1. In step 2 and 3, s/he is responsible of collecting all data (the two interviews, survey, grades, log analysis). S/he is also the author of all reports (which can be revised by an external reviewer for critical cases). The instructional designer is expected to spend 1-3 hours of work on step 1, and 4-5 hours in step 2 and 3.
2. The two activities in the prototype evaluation step are carried out by an *external designer*, i.e., on of the lab's designers who is not directly involved in the project. S/he is expected to invest 3-4 hours in step 1, depending on the dimension of the product and on the number of issues.
3. The involvement of course instructors is paramount in steps 2 and 3: they collaborate in sharing their view on the course before and after it takes place, and also help instructional designer to understand the student's feeling with the project products. Their effort is estimated as 2 hours.

The amount of time required by each role does not include the time required for designers to learn the method. This is however a little investment, as a 1-day seminar has proved enough for getting people started.

The following table presents the set of tools used in each step.

Table 1 – Tools for each step

Step	Tool	User	Author
Step 1	Technical heuristics	Evaluator	eLab (from MiLE+)
	Use scenarios and tasks	Evaluator	Instructional designer
	User Experience Indicator (UEI)	Evaluator	eLab
	Generic use scenario and tasks	Instructional Designer	eLab
	Report template	Instructional Designer	eLab
Step 2 and 3	Course Scenario of use	Instructional Designer	Instructor + Instructional Designer
	Student Survey	Instructional Designer	eLab
	Assessments	Instructional Designer	Instructor
	Log data	Instructional Designer	LMS
	Teacher interview guidelines	Instructional Designer	eLab
	Report template	Instructional Designer	eLab

Case study: Hear and See

The Swiss Virtual Campus (SVC) is a Swiss federal funding program aimed at introducing e-learning in higher education (SVC, n.d.). Hear and See (Hear and See, n.d.) is a SVC project running from September 2005 to December 2007. It is led by the Institute for Media and Journalism of the University of Lugano, in partnership with the Universities of Bern, Fribourg and Lausanne in Switzerland. It also enjoys the collaboration of the University of Applied Sciences of Luzern for graphic and interface design and of the Archives of the Swiss public television system (SSR-SRG) for the reuse of historical audiovisual materials. The technical support for implementation and maintenance is provided by the eLab. The main goal of Hear and See is producing a set of online resources about media history, media analysis and media biographies for students in Media Studies, Communication and Journalism throughout Switzerland. Its added value is (a) providing teachers and students with access to archive and rare audiovisuals materials; (b) offering interactive hand-on exercise on different topic related to media analysis; and (c) supporting online communication among students and teachers.

Hear and See developed a number of resources, including 20 online units presenting theory and exercises on different topics. These units are connected with a streaming media server that supports the download of audiovisual materials. The units are packaged as Learning Objects (Botturi, 2005), delivered to students via a LMS. The online units are accompanied by a set of web resources, namely an online glossary, a blog and an online media biography application.

Hear and See followed the eLab fast prototyping approach (Botturi et Al., 2006). A first kick-off meeting presented the requirements analysis and the scenario developed by the project leaders, and 4 months later a second meeting inspected the first prototype of one of the online units. By month 6 the first online unit was ready along with the first interactive lab, which were tested a couple of months later, when the first class of students was available. This process was then repeated at a faster pace for all online units and interactive labs. The other resources (the glossary, the media biography application, and the blog) were also prototyped at different stages of the project.

Critical quality issues

The quite wide array of resources developed for Hear and See was conceived in order to accommodate different teaching and learning needs, as emerging at partner institutions. Considering such differences is clearly a key challenge for quality measurement. Also, Hear and See aimed at producing flexible and usable resources. Namely resources that (a) do not require special hardware, software or Internet connection; (b) have easy interfaces for students of different languages; and (c) are usable in different learning contexts and scenarios. Controlling their quality *during* the design and development process, and not afterwards, was a key issue for a successful development.

Quality evaluation in the Hear and See project followed the pattern of the model presented in this chapter and its three steps. For simplicity's sake, from now on we will focus on the evaluation of online units, understanding that the evaluation of the other items developed in the project followed the same process.

Step 1

As soon as the first prototype unit was developed, it underwent a complete usability evaluation. In this case it was possible to run two heuristic-driven evaluations and two scenario-based inspections, whose results identified a list of usability errors or issues, organized along the method's main heuristics. Some of them were local problems, for example, the lack of indication of authorship on some pages; others were general problems, for example the difficult interpretation of some of the interface's icons. The project's instructional designer collected all issues into a final list, indicating possible solutions for each of them. The issues were also prioritised and grouped according to the amount of work required in order to fix each of them. While some issues required minor changes (e.g., adding a caption to a figure), other required a systematic review of the whole unit (e.g., adding a meaningful ALT tag to all graphic elements), or even an additional work with the graphic designer (e.g., producing a new icon, or defining a new match between different types of learning materials and the color codes used to identify them).

The list was then discussed with the project team: basically, all issues that allowed a quick but effective fix were solved, and additional effort was put in some of the other issues, deemed highly relevant for students' use in the foreseen scenario. Step 1 took place before any tryout with real students, so that when the first class put their hands on the prototype online unit as part of a real course, all major usability issues had already been fixed.

Step 2

The first real use case was a class of 40 students in Communication, attending the TV Programming course in their 3rd year at the University of Lugano. The instructional designer followed the method's indications, and collected all necessary data and documentation: (a) the scenario description; (b) data from the student survey at the end of the course; (c) data from the LMS tracking system; and (d) the concluding interview with the instructor. Figure 4 reports the activity flow diagram in the scenario description (the visualization used is taken from E2ML – Botturi, 2006).

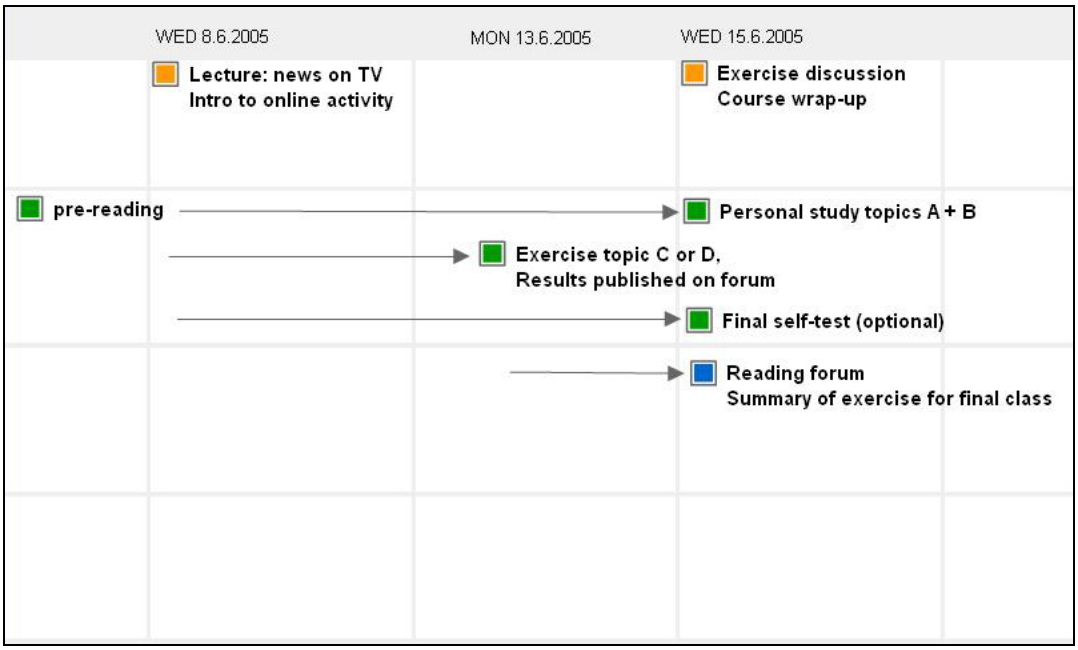

Figure 4 – Activity flow diagram

The first point emerging from the test was that the students encountered no technical problem, both when working from home and from the university campus. Although the online unit actually offered more materials than those required, the general view emerging from the data allowed determining that students strictly followed the pattern indicated by the teacher with rare exceptions. The average time students spent on the online unit (5h) matched with the teacher's expectations, and they were actually interested in the topic and enjoyed working online.

These results were then discussed with the course teacher with two different objectives: (a) identifying improvements for Hear and See courseware, e.g., providing printable versions of long texts; and (b) reflecting on the integration of the online units in the course structure, identifying barriers and new possibilities. The online unit was revised accordingly to the design guidelines emerged in the test, which were also considered for the development of the other online units.

3 months after, a set of 4 online units, including the one already tested in Lugano, were used at the University of Fribourg, in a course of Media History for Journalists. The scenario here was completely different: only 12 students had the possibility to access the online units as optional material for in-depth study of some course topics. The evaluation followed the same procedure, and the outcomes, except for the same (comforting) lack of technical problems, were rather different. First, students only used the first module presented in the course, and did not actually used the other ones. It was then discovered this was due to a naïve expectation of the teacher's, who just talked about the online modules during her classes, and did not implement a follow up session. Secondly, while students in Lugano enjoyed the presence of audiovisual materials, student in Fribourg were happy to find structured course documentation. This difference can be traced back to the different teaching tradition in the two universities: in Lugano students are used to receive handouts from teachers, which is not the case in Fribourg, where seminars are more discussion-oriented. In this case, the different context – and not the quality of the e-learning materials or the type of learning activity – produced different results. This interpretation

of the student's survey results emerged from the final interview with the teacher; otherwise the difference between the two student groups would have been inexplicable.

While Step 1 was run on the first prototype, and allowed adjusting the online unit template, within the context of Hear and See Step 2 was also run in different courses using different items developed in the project. This allowed (a) creating a base of data about the uses, issues and outcome of the project; and (b) identifying recurring issues that were put under strict observation (e.g., through interviews) and, when possible, fixed.

Step 3

Hear and See is now halfway through its lifetime: in December 2007 it will reach the end of the financing period and possibly find other ways to maintaining and further develop its digital resources. The possibilities it has are twofold: find a further financing from the original program, and/or finding a sponsor or support from a private, enterprise or institution. Independently from the results, in both cases the base of evaluation results it collected during its first two years provides a solid advantage: on the one hand it demonstrates the project's willingness to achieve sound results and to continuously improve; on the other, it allows presenting the project's strengths with real data at hand. Both are possible thanks to the availability of a lightweight method that allows continuing evaluation at reasonable costs.

About costs

As we mentioned above, the practical problem with evaluating eLearning is costs, where evaluation is time consuming and requires experts. This results in confining the evaluation to the end of the project or to specific phases. The lightweight method presented here allows making the evaluation process continuous offering a good trade-off between costs and results. Also, following a standardized process, supported by simple tools allows sharing part of the job with non-experts.

For Hear and See, Step 1 required 4 days for the double evaluation and the inspection, and half a day for compiling the usability report. For each evaluation in Step 2, we calculate 1 day of work of the instructional designer.

Certify and support: a comparison

The eLab evaluation method is process-based. It can be compared with a wide range of measurement strategies developed by international private and public organizations, such as Quality Assurance, Quality Audit, Quality Assessment, Accreditation or Benchmarking (Van Damme, 2002). Studies and researches have produced set of standards, benchmarks or guidelines in order to lead the evaluation of eLearning activities (Massy, 2002). The European Commission supported four projects within the eLearning Action Plan (EQO, SEEL, Qual E-learning, SEEQUEL), while other associations as ADEC, AFT and ASCLITE, ASTD, IHEP, EFQUEL, and EFMD promoted the development of a set of parameters to measure quality in eLearning.

In particular the ASTD (American Society for Training & Development) method proposes a set of standards for the E-Learning Courseware Certification (ECC). Rather than certifying a particular technology, the ECC intends to certify the quality of the learning experience. It is focused on the ability of a course to teach – it does not certify content, rather it looks at the relationship between users, technology, and content. In fact, ASTD declares it would be nearly impossible to certify that all of the content contained in a course is true and accurate. However, standards can be used to determine if content exists for all course objectives, if the content is well presented, if the course reinforces learning with sound instructional design practices, if it uses predictable technology, and if it supplies an engaging learning environment.

ASTD standards are grouped into four principal categories to reflect the various elements of courseware design.

1. Interface Standards address the relationship between the learner and the courseware itself. There are five interface standards.
2. Compatibility Standards address the relationship between the courseware, the operating system, and related applications. There are four compatibility standards.
3. Production Quality Standards examine the quality of the courseware's text, graphics, grammar, and visual presentation. There are two production quality standards.
4. Instructional Design Standards examine the relationship between the course purpose, objectives, instructional content, instructional methods, and the learner. There are seven instructional design standards.

An other example is the effort made by ISO/IEC (2005) to harmonize the various approaches used around the world for assessing the quality of e-learning initiatives. The standard harmonizes the international conception of e-learning quality by creating a coherent inventory of the diverse processes which affect the attainment and preservation of e-learning quality. These processes embrace all e-learning application scenarios, such as content and tool creation, service provision, learning and education, monitoring and evaluation, and lifecycle stages – from continuous needs analysis to ongoing optimization.

Both ASTD and ISO/IEC approaches at the same time share something and differ with the eLab approach. What they share is the focus on the teaching and learning process (Instructional Design for ASTD, process for ISO/IEC and field test for the eLab) as different from technological products. The main difference lays in the scope of the evaluation: both ASTD and ISO/IEC standards are conceived for being applied to a complete course in order to *certify* quality; for this reason they can require more resources. The eLab approach on the other hand is designed to accompany and *support* the design and development process, in order to provide guidance and, when needed, redirection.

This short comparison allows identifying some critical concerns of the eLab method. It is surely limited, mainly in extension (it does not consider a systemic view of eLearning as the ISO/IEC method) and in precision (it does not provide structured data collection tools or procedures). Its main merit is on a different level: that of making quality evaluation doable and at the same time useful, providing enough feedback in order to make sense to project teams. Finally, certification and support are not mutually exclusive. Rather, they can be fruitfully integrated in a wide quality management program.

Conclusions

The opening of the chapter described the raising concern for quality as a sign of the growth and spread of eLearning. We have also briefly discussed the fuzziness of the concept of quality – already discussed in other chapters in this handbook – and proposed a definition of three levels. This definition served as basis for the development of a lightweight method that supports the integration of eLearning quality evaluation in the day-to-day practice of eLearning design, development and delivery. The method was presented in detail, illustrated by a case study and confronted with other approaches.

Quality evaluation is a work in progress: in general needs evolve, and tools should move with them; in each single project, peculiar features should be taken into account, and the method, or the standard, adapted and reinvented each time. Quality is a challenge, and, as we have seen, a key issue for the real integration of eLearning in our culture of education. Making it approachable and useful for practitioners is a step in this direction.

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Appendix: Acronyms and web references

EQO: European Quality Observatory, www.eqo.info

SEEL: Supporting Excellence in E-Learning, www.seelnet.org

Qual E-learning, http://www.qual-elearning.net/

SEEQUEL: Sustainable Environment for the Evaluation of Quality in E-Learning, http://www.education-observatories.net/seequel/index

ADEC: American Distance Education Consortium, www.adec.edu

AFT: American Federation of Teachers, www.aft.org/

ASCLITE: Australasian Society for Computers in Learning in Tertiary Education, www.tlc.murdoch.edu.au/project/cutsd01.html

ASTD-ECC: The ASTD Institute E-learning Courseware Certification (ECC) Standards, http://workflow.ecc-astdinstitute.org

IHEP: Institute for Higher Education Policy, www.ihep.org

EFMD European Foundation for Management Development, http://www.efmd.org

EFQUEL: European Foundation for Quality in eLearning, http://www.qualityfoundation.org

Authors' bios

Luca Botturi holds a Ph.D. in Communication Sciences and Instructional Design from the University of Lugano, Switzerland. He is currently instructional designer at the eLearning Lab, and researcher for the NewMinE Lab - New Media in Education Lab at the Università della Svizzera italiana in Lugano (Switzerland). He is also founder and project manager of seed, a non profit organization promoting the development of a culture of educational technologies in international development. His research interests include effective course design with new technologies and team communication.

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Abstract and Keywords

Abstract. Both experience and research indicate that effective management of quality evaluation is a key element for the successful integration of eLearning in any educational setting. Also, they indicate that the main hurdle in making quality a daily concern for the people involved in eLearning is its sustainability: monitoring quality is an expensive activity whose return is not always clear. This chapter introduces a basic framework concerning quality in eLearning, and then proposes a lightweight method conceived for integrating quality measurements at

different levels within the normal lifecycle of an eLearning project. The method is presented, discussed, and illustrated by a case study.

Keywords. eLearning quality, sustainability, integration,