eLQe: A Cool Tool for Simply Evaluating Your E-learning Course Development

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Abstract— **A web-based self-assessment tool was developed for the support of program managers and faculty in the planning and implementing of e-learning activities. The self-evaluation tool is available at en.elqe.at. It provides criteria for the achievement of one's quality objectives. Based on this evaluation tool Danube University Krems has implemented a quality development process for its blended-learning courses. A two-stage e-learning label has been introduced. In this article the development process including the development of the tool is illustrated.**

Index Terms — **e-learning development, quality criteria, self-evaluation tool.**

I. INTRODUCTION

Quality is increasingly becoming important in implementing e-learning. With the rise of quality assurance issues e-learning is of growing interest to policy makers. In order to assure quality a common understanding by all the stakeholders involved is required. Often when it comes to e-learning interpretations happen to be quite divergent. This is especially so if quality in e-learning is addressed [1], [2]. It is clear that there is no one right answer for how to assure quality as such, nor which method to apply. The concept and vocabulary of quality is elusive and its definition often depends on the stakeholders' point of view. In the context of this article the use of quality criteria lists is envisaged. Regardless of the evaluation approach quality objectives need to be set clearly. At Danube University Krems two sets of quality objectives, referring to both, the institution and the learner have been defined:

Institution-oriented
- creating a coherent terminology
- improving guidance for all stakeholders
- allowing for internal and external comparability

Learner-centered
- extension of didactic variety
- allowing flexible access in terms of time and location
- support for personalized study and online co-operation

In order to support quality assurance for e-learning various approaches and evaluation criteria of organizations which issue certificates for e-learning have been analyzed [3]. These analyses served as to identify common quality criteria for e-learning in use.

II. CERTIFICATIONS

At present, there is no globally approved standardized procedure and no globally approved standardized set of criteria available for evaluating the quality of courses or programs which are based on e-learning. Yet several process-oriented, product-oriented, and competency-oriented frameworks for quality management and for quality assurance have been developed by organizations like ISO, ASTD, DMMV, DIN, or EFQM [4].

Though, there is no uniquely approved agency in place, which is in the position of awarding certificates based on commonly adopted standards, there are a number of membership organizations, institutions, or companies which do a great job in offering such certification services on a European scale (see Table I).

Instead of relying on an external institution some universities have decided to implement their own certification procedure based on self-evaluation [5]. The benefit of such an approach is, apart from cost savings, that such a process requires dealing intensively with one´s own quality requirements which is likely to result in a successful quality management policy. The downside is apparently the danger of stewing in one´s own juice. The following German universities implemented their own certification process, while Technische Universität Darmstadt pioneered in this field:

- Goethe Universität Frankfurt
- Justus-Liebig-Universität Gießen
- Ruhr-Universität Bochum
- Technische Universität Darmstadt
- Universität Kassel

Different organizations or universities might focus on different certification targets. Contents, courses, study programs, or the institution as such might be the target of the certification. Key to any of these certifications is the set of criteria underlying the evaluation process. Depending on the target object (lecture, course, institution) and on the institutional policy those criteria focus either on design or usability, on didactics or learning scenarios, or on learning culture or profitability. In the course of developing the criteria for the self-evaluation process to be implemented at Danube University the criteria applied by both, service

TABLE I.   European Organizations offering Certification Services related to e-learning offerings

Abbr.	Name	Country
D-ELAN QPL	German Network of E-learning Agents – Quality Platform Learning	DE
EADTU-QA	European Association of Distance Teaching Universities	BE
EFMD CEL	European Foundation for Management Development – Technology Enhanced Learning Accreditation	CH
EFQUEL	European Foundation for Quality in E-Learning	DE
eLSA	E-learning Life at School	AT
epprobate	the international quality label for e-learning courseware	BE, TW
HITSA	Estonian E-universities E-course Quality Label	EE
LPI	Learning & Performance Institute	UK
Naace	National Association of Advisors for Computers in Education	UK
Q.E.D.	Quality Initiative E-learning in Germany	DE
SEVAQ+	Shared Evaluation of Quality in Technology	FR

contractors and universities, have been analyzed. In total, 16 institutions (eleven service providers, see Table I, plus five universities named above) have been identified and their sets of evaluation criteria have been analyzed. Table II shows the frequency of the criteria used at the particular evaluation processes at all of the 16 institutions. In Table II criteria with similar meanings have been clustered.

Regardless of the varying focus of the evaluation ranging from content to culture we found a great overlap of the terms used. On the other hand, none of the evaluations included all of the terms and the compositions differed widely, so that none of the sets of criteria were identical.

The topics dealing with didactics (#1) and content (#2) have been addressed more frequently than all the other entries (#3 to #12). These first two topics were also ranked first as a result of the conceptualization of Danube University's quality criteria list.

TABLE II.
Frequency of the criteria used by the organizations offering certification services

#	Criteria	Count
1	learning process, pedagogy, didactics	8
2	media design, quality of content	7
3	information, documentation	4
4	target group orientation, choices	4
5	program, course	4
6	technology, tools	4
7	evaluation, review	4
8	curriculum design, planning	3
9	organisation, administration	3
10	management, strategy, vision, culture	3
11	communication	3
12	students support, skills development	3

A. Conceptualization of Quality Criteria

The compilation of the quality criteria was one of the tasks of a research project[1] conducted by Danube University Krems in cooperation with an e-learning consulting company[2]. It was based on the analysis of the criteria listed above. In addition to that focus groups (e-Learning experts from twelve Austrian universities) and pilot users (course directors being in charge for self-evaluating their e-learning courses) have been involved. As a result of a lengthy development process the following set of quality criteria, divided into five groups, was defined [3]:

I. Teaching Plan
    Teaching scenario, teaching methods, teaching and learning goals and assessment, media and choice of materials, choice of tools

II. Course Content
    Conventional multimedia content, dynamic/interactive content, content from external sources, content created by students, additional material

III. Teaching/Learning Process
    Advice and guidance, monitoring and feedback, communication, consolidation, monitoring success

IV. Competencies
    Media and IT competence, e-Assessment competence, content creation competence

V. Information and Administration
    Program, course, module, class information, formal meeting of criteria, administration, Learning portal

These criteria range from general institutional framework conditions to micro-didactical settings. The criteria and their descriptions serve as a base for self-evaluation and were finally translated into a questionnaire (see chapter III.). Respondents, depending on their job role, might focus on their specific domain, nonetheless, the questionnaire always provides the big picture. In addition to that, respondents are provided with guiding information before starting the assessment.

B. Teaching Scenarios

Quality objectives predetermine the frame of reference in the evaluation process and thus should be stated in advance. Analysis of the general concept of the course should be made regularly, in order to keep the implementation of the program aligned with the criteria for success. The course, program or module concept has to be translated into a suitable teaching offering. To enable this, eLQe provides a set of predefined templates for teaching scenarios, with their own pre-set indicators.

The four teaching scenarios demand different weightings of data from the evaluation. Before starting the evaluation one of four pre-set teaching scenarios should be chosen.

Scenario 1: Face-to-face instruction with e-learning supplement

a) E-learning is optional

b) Teaching is done in person
c) Supervision is in person
d) E-learning offers additional materials for study
e) Learning targets can be reached without the use of the e-learning facility.

Scenario 2: Blended learning

a) E-learning is compulsory
b) Teaching is both in person and via eLearning
c) Supervision is done both in person and through e-learning
d) E-learning serves to supplement the course, but both presence and eLearning activity are necessary
e) Learning goals cannot be met without the use of e-learning

Scenario 3: Guided e-learning

a) E-learning is compulsory
b) Material is only taught via e-Learning
c) Supervision is remote
d) E-learning performs all teaching roles including supervision
e) Learning goals cannot be reached unsupervised or without e-learning

Scenario 4: Self-guided programme, unsupervised

a) E-learning is compulsory
b) Materials are taught only through e-learning
c) Unsupervised
d) E-learning fulfils all teaching responsibilities, with no supervision necessary
e) Learning goals cannot be reached without e-learning, but can be without supervision.

III.   E-learning Quality Evaluation (eLQe)

With the evaluation criteria at hand a web-based self-assessment tool *e-learning quality evaluation* (eLQe) was developed. The tool is available at http://en.elqe.at. It provides evaluation criteria and data allowing for an orientation with respect to the achievement of one´s quality goals in a resource-friendly way. eLQe addresses course developers, teachers, program managers or any person involved in the practice of design, development, utilization, management, and evaluation of processes and resources for e-learning. The object for evaluation could be either a lecture, a course module, or a complete study program.

The tool is based on a questionnaire which is divided into five sections according to the listing I – V (see chapter II A.). Each chapter consists of four resp. five items, 23 in total. All items are exemplified, so they should be interpreted identically by all respondents. The assessment uses a rating scale ranging from 0% ("Very Poor") to 100% ("Very Good") which simplifies the rating and minimizes the room for interpretation. Figure I shows an example of a sample assessment of a blended-learning scenario. The category "Teaching Plan" is assessed by means of five items I.1 – I.5. Each item is clearly described and illustrated by examples.

Use of the eLQe tool follows a four-step process:

Step 1 - Metadata input:
To start with, metadata identifying the target of the evaluation is collected. The evaluation object can be a single course, class, module, or a full program of study.

Step 2 - Choose the teaching/learning scenario:
A choice of possible scenarios is given, and the most suitable option should be chosen. This will determine how certain factors will be weighted in the evaluation.

Step 3 - Self-evaluation:
The self-evaluation tool uses a database-supported online form, in which the user assigns percent values to a series of statements describing the program. This value indicates the extent to which the statement has been achieved.

Step 4 - Review:
A summary review will be generated in diagram form, showing the results in the five separate categories. An overall average value will also be given. Following registration these results can be downloaded individually.

Figure 2 shows a sample result of the self-evaluation of a blended-learning course. Numeric values of each of the five categories are count up and are plotted in a radar diagram. They can also be checked against mean values of previous evaluations.
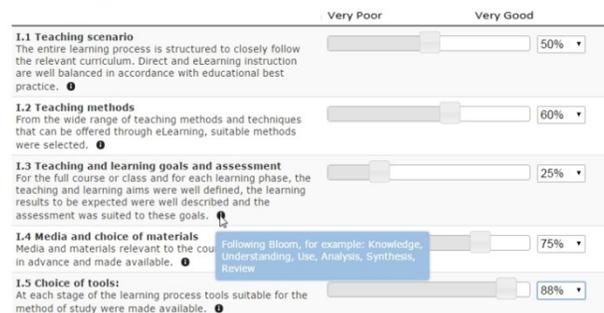
Figure 1.   Screenshot of a sample assessment for the category "Teaching Plan".
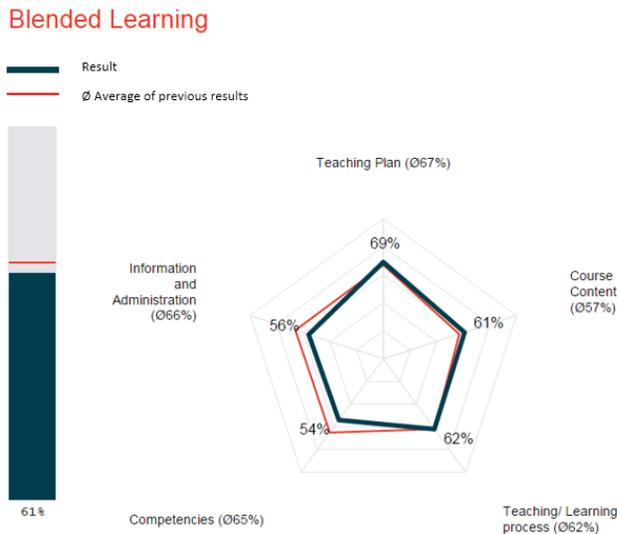
Blended Learning

Figure 2.   Screenshot of the result page of a completed sample assessment.

III.   E-LEARNING LABEL

Danube University´s study programs are offered in a blended-learning mode. In order to support quality-oriented development of e-learning courses and programs an internal certification process has been implemented. This process is based on self-evaluation which has been proved to be a promising approach [5]. Courses which fulfill the requested criteria are awarded with an *E-Learning Label*. In order to earn such a label program managers are requested to perform a self-evaluation by means of a tool like *eLQe*. With the results of the self-evaluation process course managers apply for an audit. At this audit the statements made are verified and reflected together with members from the E-Learning Center. Depending on the achieved score the label *E-Learning Advanced* (score > 55), respectively *E-Learning Professional* (score > 90) is awarded.

This process has ensured that quality issues gained substantial attention at Danube University Krems. Within three years 180 labels were issued, about 10% of them reached the level required for the *E-Learning Professional* label.

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