How to improve individual quality in the field of e-learning – the European Quality Observatory

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Abstract: *The field of quality in e-learning is a very broad and complex one and therefore not easy to handle. In this article the conceptual framework and the accompanying internet-based tool of the European Quality Observatory (EQO) are introduced as one helpful means to cope with this complex matter. EQO improves the access to and the analysis and comparison of quality approaches for e-learning and thus enables a better understanding of relevant quality aspects.*

Keywords: *e-learning, quality, quality approach, metadata, European Quality Observatory, EQO*

1 Quality and the need of standardisation in the field of e-learning

In the following it is shown that quality is not as easy to handle as it seems at a first glance. There are many different points of views as well as special considerations. These conditions are reflected in the variety of quality approaches which have arisen especially in the field of e-learning.

1.1. Quality – easy to handle?

Starting with a look in a couple of lexica the frequently used term for the word *quality* is 'condition', 'excellence' or 'value' [Weiß1997]. Quality can be seen as conformance to requirements [Cros1979] what allows a measurability of the actual quality situation and some experts even avoid a concrete definition at all. Deming [Edwa1986] for example deals with the problem of quality by proposing a corporation-wide philosophy of quality in drawing 14 principles of management. These include for example a constantly and indefinite improvement, an institution of education and self-improvement or the adaptation of the new philosophy. It is apparent that the term quality – derived from the Latin term *qualis*, meaning 'of what kind' – is quite abstract and not easy to handle. Although this denotation of quality targets at the inherent characteristics of a product or a supply of services a uniform comprehension of quality is not generally possible. There are existing different perspectives at quality from different points of view and under special considerations – for example perspective, process or product of a process, scope or competence of satisfying individual needs.

Just like quality the field of education is a very complex topic as well. At the one hand there are a lot of educational sectors where education takes place and on the other hand education is always bound to the context in which it takes place. For example schools or universities for public utilities or even different online courses or schoolings and further trainings of private utilities act as providers. Another aspect is that within educational processes people can respectively act on different levels. These might for instance be developers, learners, teachers or managers.

By combining the abstract field of quality with the at least as complex field of education an idea is given of the all-round function and the far and wide challenges quality approaches have to satisfy in the field of e-learning. The question arises how a complex concept as quality can be comprehended systematically.
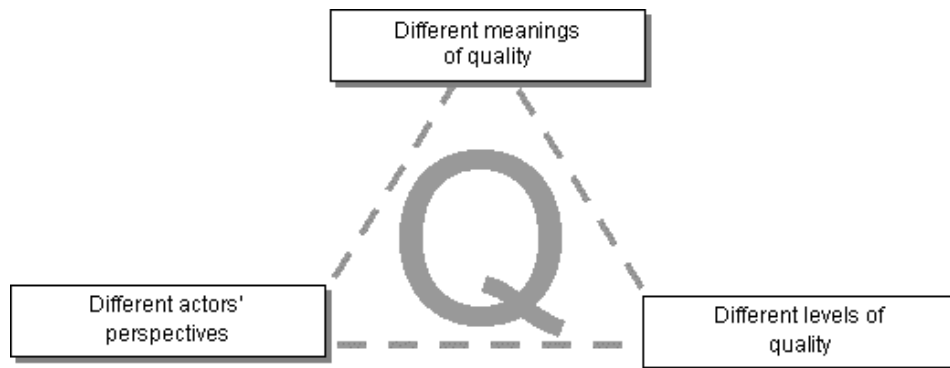
Figure 1: Multiple perspectives of quality in e-learning [Ehle2004]

In fig. 1 there are three different dimensions that can be distinguished here: different quality meanings and understandings, different quality perspectives and different levels of the educational process to which quality can apply.

1.2. The variety of quality approaches

In the field of quality management, quality assurance and quality assessment there are a lot of existing approaches that have to satisfy the aforementioned different views of quality itself as well as a variety of educational aspects. In the field of education different techniques and methods to enhance quality, especially in e-learning, are used and also different levels of educational quality are addressed in these approaches. For that purpose, different concepts of quality itself – e. g. pedagogical quality, technological quality, economical quality, etc. – are integrated into the different approaches. It becomes an even more complex matter considering this field on a European scale.

It is apparent that in the last years a mass of quality management, quality assurance, and quality assessment approaches have been developed. The EFQM-Model (European Foundation for Quality Management), ISO 9000 (International Standardization Organization) and BAOL (British Association for Open Learning) are three approaches that are common practice. The EFQM-Model [EFQM2003] as an integrated model – used for self-assessment – is based on three fundamental pillars of the Total Quality Management: with the integration of all employees (humans), processes are continually improved in order to get better results. This model is a non-prescriptive framework with nine criteria to determine what an organisation does and achieves. The ISO 9000 [ISO2004] is a structural framework of a business system that specifies, in very broad terms, the necessary components of a quality management system. It is used to prove organisations by external assessment to earn a seal of approval. A process-based structure is anticipated with properties focused on management of responsibility, resources, processes and analysis. The last of the three examples is the BAOL Quality Mark [BAOL2002] that includes internal self assessment and external verification of those providing products and services for open and flexible learning. The open learning activities, for example, are grouped within three categories: materials development, advice and guidance and learner support.

It is obvious that a central data base providing access to the great variety of quality approaches as well as a framework to handle these approaches is needed quite urgently: a quality concept for analysing and comparing the considerable quantity of different quality approaches, to access information on the usage of quality approaches and to evaluate different implementation or usage strategies. Moreover, the possibility must be given to localise the approaches in order to get the best results for the specific needs of the user [HiTe2004].

2 Imagine you are responsible…

As mentioned before there exists a great variety of different quality approaches for different users and special views in the field of e-learning. Imagine you are responsible for the e-learning quality in your organisation:

What would you do to find an appropriate strategy to improve the quality of your e-learning courses? Another question you have to answer is where you can find a set of suitable criteria to specify the aspects of quality or a fitting policy for your company's needs. Imagine you are a provider or producer of e-learning materials and you want to assure a "good quality" of your offered products – whatever that means for you and your customers. Perhaps you have to make a decision, based on facts to choose the right criteria and a strategy to evaluate the quality. How would you start and get the right information?

The necessity of a superior quality concept in order to help developers and users to assess the multiplicity of quality approaches and to select the right one for the own quality needs is obvious. There must be an established decision support in finding not only a set of criterions to describe the own view of quality but also in choosing the right quality approach for this specified criterions. A support like this requires a consistent description of the before mentioned variety of quality approaches. Therefore the European Quality Observatory has developed a metadata-scheme that enables the consistent and harmonic description of approaches. Based on this scheme the analysis and comparison of the different quality approaches can be realised. A process model – the EQO decision cycle – assists the user in different steps: analyse the quality needs selecting the right criteria, analyse the existing approaches based on the selected criteria, make the decision for an approach supported by information of a database of other users' experiences and finally adapt the approach to the organisations' specific needs [EHPT2004].

3 The EQO Decision Cycle

In the following it will be shown how EQO can support any actors involved in quality in e-learning in finding the appropriate quality strategy for any e-learning scenario. Walking alongside the four steps of the EQO Decision Cycle (see figure 2) it will be illustrated how the EQO conceptual framework and the accompanying internet-based tool provide the user with useful information in each of the four steps.
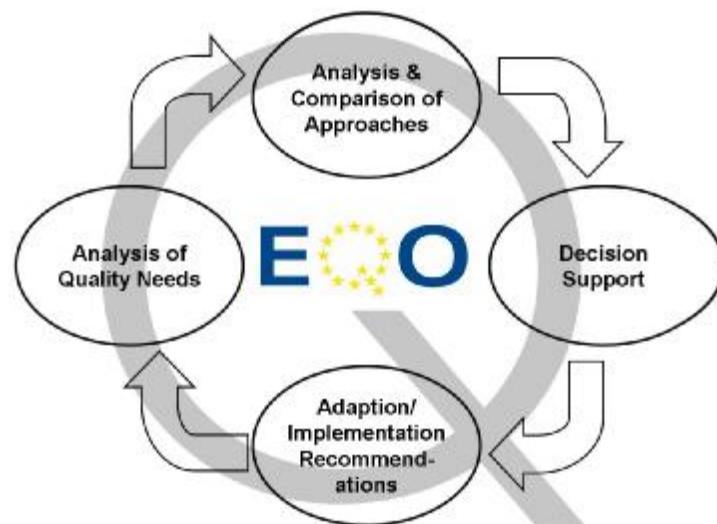

Figure 2: The EQO Decision Cycle

A good point to start is the analysis of the quality needs of the current situation – no matter if somebody just started to deal with the field of quality in e-learning or if this person is already well experienced in this area.

Therefor a set of criteria defining the different aspects of quality is needed. In EQO there has been developed a metadata scheme, called the EQO Model [EQOM2004], which consists of many different criteria to describe these different aspects. This set of criteria or aspects of quality can help people to define what they in their specific situation understand by "quality" and thus supports them in defining their quality needs and requirements. This description model contains many aspects which might not be applicable to a specific situation, because there are really many different aspects to be taken into consideration to cover the whole field of quality in e-learning and to most situations only a more or less substancial subset of these different aspects will be applicable. But on the other hand people will find criteria which otherwise they didn't even think about or realise that they might be important for the quality in their organisation.

3.1. Analysis of quality needs (step 1)

To make this metadata model usable there has been implemented a corresponding internet-based tool – the EQO repository [EQOW2004], (q.v. figure 3). So in a first step an e-learning actor could go to the EQO website [EQOW2004] and browse through different quality approaches according to different categories and criteria to get an idea of all these different aspects which can be taken into consideration to specify quality in e-learning. Inspired by the different methods and instruments which are used in available quality approaches the user will get a clearer idea of the exact aspects of quality of his or her current situation. The definition of the exact aspects of a context determine the characteristics a quality approach needs to fulfil to be an appropriate one for the specific situation. Therefor a standardised description framework like EQO can deliver helpful support.

3.2. Analysis and comparison of approaches (step 2)

After the relevant criteria have been defined, in a second step different quality strategies, or quality approaches, how they are denoted in EQO, need to be analysed and compared according to their appliance to these previously defined criteria. Regarding the great variety and bandwidth of different quality approaches it is not easy to profundedly compare them against each other. Beginning from small checklists containing few criteria for very specific contexts of usage up to holistic approaches like total quality management approaches e.g. the beforementioned EFQM [EFQM2003] or ISO 9000 [ISO2004] goes the bandwidth. It is obvious that because of the huge number and great variety it is very hard to get an overview of all these different approaches and to compare them against each other. Again EQO offers support by providing a standardised description framework of predefined criteria to describe the whole bandwidth of different quality approaches no matter if they have been specifically developed for the quality assurance of e-learning materials or if they originally have been developed for quality assurance in general, but now also are applicable for e-learning courses.

According to this standardised description framework the user has different possibilities to access analysed quality apporaches.

1. Browse & search for quality approaches

In accordance with the EQO Model in the EQO repository there are selected categories in which people can search for qualitiy approaches regarding the corresponding criteria. For example if an author of e-learning materials wants to search for quality approaches which provide quality criteria to be considered during the process of creation of e-learning courses one possible search strategy would be to go to the browse-interface of the EQO repository and select in the category "target group" the criterion "author".

Another possibility for this author of e-learning courses is to search in the category "process" for all quality approaches dealing with the sub-process "course development".

For users who are already more experienced with quality approaches there are other search functionalities which can be used. The first one is the so called quicksearch which is a fulltext search on many fields in the database and beyond there are advanced search functionalities which provide a search according to (previously defined) user's ratings and preferences (expatiated in [MaSa04]).

2. View quality approach online or create PDF

No matter if starting with the browseinterface or with either of the search interfaces after executing the search the user will be presented a resultslist containing all quality approaches which are currently in the repository fitting to the search criteria. Now each description and analysis of these quality approaches can be access by simply clicking on the items of the results list. This will open the description of the selected quality approach. All the descriptions of analysed quality approaches in the repository follow the categories and criteria of the EQO Model. According to the four categories of the EQO Model the analysis is spread over four tabs: general, context, method and experience (cp. figure 3). The *general* category covers all information which is needed to clearly identify the quality approach. These are information like the name of the approach, a short textual description of the actual version, the language in which the quality approach is expressed, the location where it can be accessed as well as copyright and other restrictions. The *context* category describes the educational context which is covered by the quality approach. This educational context is defined by information like the educational level, the industry sector or educational institution the approach is related to, the target group at which the quality approach aims as well as the cultural or regional coverage. Also it answers questions like: has this quality approach been developed for a specific topic and to which educational (sub-)processes can it be applied? Also the quality goals the quality approach adresses and in particular the sense in which quality is understood or defined in this quality approach are specified here. The *method* category finally defines whether the quality approach focuses on results of a process or the process itself and it states the methods and instruments which are used within this quality approach.
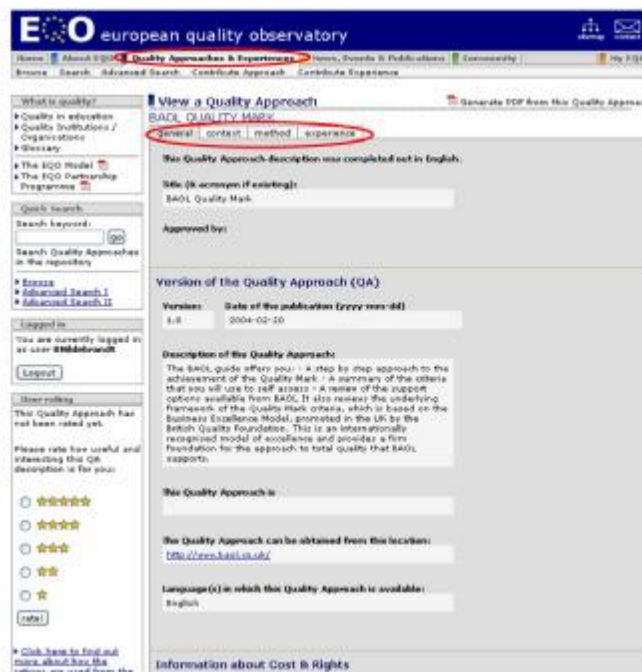

Figure 3: The EQO-Repository: View a quality approach

While these three categories cover a theoretical analysis of the quality approaches which is done by quality experts based on the official documentation of the quality approach there is also a practical analysis of the approaches summarised in the fourth category *experiences*. As the generic model of a quality approach often is very different from the instantiation of this model when applying it and thus exploiting it to a concrete organisation or context we thought it to be as important to have a practical analysis on all quality approaches, too. Therefore there is a second main category called "experiences" which covers the above mentioned categories plus information about the concrete setting where the quality approach was implemented. Here people can directly see which aspects of a certain quality approach needed to be adapted and how they were adapted for instantiating this quality approach for a concrete use case. Also information about indicated key factors for success or failure in adapting quality approaches can be derived from here.

If the user doesn't want to look through the analysis of the quality approach while being online or if one wants to compare different quality approaches directly against each other a helpful feature is the possibility to create PDF (portable document format) documents of the analysed quality approaches. It is possible to either create a PDF of each of the quality approach descriptions while looking through them or to create a PDF document containing all quality approaches which are listed in the results list of a search operation. For example if a user executes a search without entering any search term the results list will contain all quality approaches which are currently analysed in our repository. And if the user then creates a PDF of the results list he or she will receive a complete book of analysed quality approaches.

3.3. Decision support (step 3)

After the different quality approaches have been analysed according to their appliance to the previously specified quality criteria and after the user has found out which ones of them can be applied or adapted to the considered e-learning scenario in the next step the best fitting quality approach is selected. But still in most of the cases there won't be a single quality approach perfectly fitting to all of the criteria and that's the point where adaptation has to take place. With the help of EQO people are able to have a look at all existing criteria of the listed results that are stored in the database to get detailed information about further characterising criteria of the approaches. In addition to the complete list of criteria of an approach the beforementioned category of experiences gives useful information from other users. These descriptions of experiences contain detailed information about the process of adaptation other users passed through when applying this quality approach to their concrete use cases. Moreover they contain recommendations these users make according to their experiences for future appliance and adaptation processes.

3.4. Adaption/ implementation recommendations (step 4)

Based on these information the user will be able to find out which quality approach is the best fitting one to fulfil her or his needs. In the following next step this quality strategy or quality model has to be applied to the considered e-learning scenario. In some cases the user will face the fact that the chosen quality approach does not perfectly fit to all of the specified criteria. In this case it is possible to search for these special criteria in a further search process to find quality approaches which are excellent only in these special aspects. Based on the results list the user can decide which quality approaches from this second search deliver the most suitable solution for the specified aspects and if and in how far they can be integrated to the approach which has been chosen to be the one in the step before. In the next step parts of quality approaches generally not fitting to the concrete scenario, but in certain aspects perfectly fulfilling the requirements will be integrated and in that way a combined quality approach especially satisfying the user's needs arises.

After creating such a harmonised quality model as the user's personal quality approach this model has to be applied or adapted to the concrete scenario. The appliance of quality approaches in the field of European education always requires a process of adaptation as at least the quality instruments and

methods which are used within the underlying quality strategy have to be applied to the user's concrete context.

And in the end, after the appliance of the personal quality strategy to the specific e-learning scenario the whole decision process will start again, because the definition and assurance of quality is an allways ongoing procedure and subject to change.

4   How can you participate?

The European Quality Observatory is a European consortium of expert organisations in the field of quality in e-learning, led by the University of Duisburg-Essen and supported by the European Commission. The core objects of the project can be summarised as follows [Pawl2003]:

- Development and allocation of a conceptual framework for analysis, description and comparison of quality approaches in education (spec. e-learning) on a European level: the EQO Metadata Model as mentioned before.
- Construction of an internet-based repository for quality approaches as quality development, quality management and quality assessment especially in the field of e-learning. Users of these approaches are e. g. teachers, tutors, developers, CEOs, etc.
- Provision and collection of recommendations for the use and experiences of other users of quality approaches on a European level.
- Arrangement to provide services to support the implementation of quality approaches & support the community of users.

In order to facilitate the core objects the project is creating a European quality community by collecting, analysing and synthesising the different approaches currently in use and is by that facilitating a cross-country understanding of quality systems. This network consists of users of quality approaches, organisations and other networks. It is designed to bring these different actors together into a community of expertise to exchange experiences, evaluation and know-how. The metadata model for the analysis, description and thus comparison of quality approaches is the result of an extensive research and intensive consensus building phase between the European partners of the EQO project and discussions in various standardisation bodies on European and international level as the CEN/ISSS[1] and ISO[2].

If you are actively involved in the field of e-learning than don't hesitate to become a member of the growing e-learning community in Europe by registering to the portal.

EQO offers two possibilities of participation: member users and partner users. What does this mean? A user of EQO is able to contribute quality approaches to the EQO quality database and has the rights to contribute experiences, to use all search and adaptation services and to get newest information about EQO work (newsletter). Moreover there the user is able to participate and discuss in forums. An EQO partner gets full access to the EQO quality infrastructure and community. Partner users have rights to contribute quality approaches & experiences to the database, use all search and adaptation services, be informed about newest developments in e-learning quality, initialise, participate and discuss in forums, take part in the approval and review procedures for new contributions. Moreover the partners of EQO are welcome to present their organisations as part of the EQO portal, and get the opportunity to coordinate a national network for the European Quality Observatory in their country[3].

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[1] CEN: European Committee for Standardisation (Comité Européen de Normalisation); ISSS: Information Society Standardisation System

[2] ISO: International Standardization Organization

[3] For further information: http://www.eqo.info/files/eqo_partnerprogramme.pdf

5   Conclusion

Quality in e-learning can not be uniquely defined as it depends on many different aspects, different actors' perspectives, different levels of quality, etc. To enhance the use of quality approaches which regard to all these different criteria a standardised description framework like EQO is helpful. To bring this framework to live an internet-based tool has been developed and filled with first analysed quality approaches and experiences people have made while using these approaches. But such a tool is only as useful as it is actually used. So if you are involved in the field of quality in e-learning become a member of this community either by getting in touch with different quality approaches as a beginner or by contributing analyses of quality approaches or experiences you have made when using them.

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