

Towards greater quality literacy in a eLearning Europe

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Summary

The article emphasises the importance of viewing quality development not as an add-on to eLearning, e.g. as an isolated evaluation approach at the end of a course. Quality development, rather, is viewed as a key aspect, occurring in every single development and delivery process of eLearning courses and programmes. From research, three concepts can be utilised and combined to form a new, comprehensive concept of quality development:

1. Quality development has to lead to better learning. This viewpoint can be called education-orientated quality development and emphasises that quality development has to take into account the learners' situation. Learners' preferences are analysed to show that they cover a multitude of factors and preference profiles. This suggests that quality approaches have to be highly flexible and allow for individualised quality.
2. Quality development, however, has to take into account not only the learners' needs; it is a process in which the interests and requirements of the eLearning stakeholders have to be considered as a whole and combined to form a comprehensive concept. Quality in this respect is seen as a relation between the demands and needs of a stakeholder group and the actual delivery of eLearning. In order to shape this relationship in the best possible way, a negotiation process is necessary, involving all stakeholders and integrating their preferences and situations against the background of the given economical and organisational situation. These negotiation processes occur in different positions of the learning environment. We suggest utilising process models such as the ISO Reference Model.
3. The third part of the concept is concerned with the question of how existing concepts, approaches and strategies can be used for quality development. A decision cycle is being suggested that makes it possible to find a suitable quality approach for a given context. However, to decide which quality approach is suitable, to choose from a set of possible strategies, and to adapt those strategies to the specific situational context, certain competencies are necessary. For these competencies, we developed the concept of quality literacy. It covers competencies such as knowledge of quality development, experiences in using particular instruments, modification skills and the ability to thoroughly analyse one's own situation and needs.

Keywords: eLearning, Quality, Quality Literacy

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1. Introduction: Myth and Reality in an European Quality Debate

Quality in education is an issue of great debates - for quite a while already (c.f. Ehlers 2004a), the demand for quality is not new. For e-learning this is true as well [1]. Since e-learning is on its way from isolated entrepreneurship to a more general offering, quality is on stake. What is new to the debate is that the concept of quality changes its status from an add-on, e.g. summative evaluations at the end of a program, to a key process. It is today responsible for adaptation of the e-learning scenarios to the needs of the target

group - if possible continuously, in real time. Quality in this sense can be described as the ability to provide a learning experience which is tailored to the learners needs in the frame of the existing context conditions, e.g. the workplace (similar to the quality definitions which view quality as 'fitness for purpose').

The field of such a learner oriented quality development, however, is still an open debate. So far, it is unclear which learner variables/ characteristics have which impact on learning. From a scientific point of view, the concept of learner orientation therefore remains in the dark. Quality certificates claiming organisations

compliance to learners requirements have to be aware of that, and have to show that this is not rooted only in trendy debates.

Despite the educational reality and the uncertainty of how the concept of learner orientation can be put into practice, a close look at the European educational debate reveals that Europe is completely learner oriented in its educational philosophy. All official policy documents follow a modern constructive rhetoric and take on the leitmotiv of a competent acting individual, developing skills and competencies in a self-organised manner for the active participation in the "knowledge society".[2] For the sector of higher education this can be seen in the Bologna declaration (EC 1999), for the field of vocational education and training this can be derived from the Copenhagen declaration (EC 2002) and for schools this is discussed in all European countries after the PISA results hit the ground.

It is the expressed goal also in most of today's mission statements and educational philosophies of professional staff working in the educational field to put the learner in the centre of attention, resp. in the drivers seat. No actor in the field of education, be it on the policy level, the administrative level, in the field of pedagogical practice as well as in educational science is taken seriously in the debate anymore, when failing to mention this point as the basic principal of the presented activity or concept.

What is challenging is that within this thinking, pedagogical concepts come within close range of technological concepts, and economical strategies. In e-learning there is no clear disciplinary border. That makes some of the actors within one or the other field feeling rather uncomfortable. They sometimes hesitate to link up concepts because they are afraid of diminishing the assets of their discipline. In this article we suggest a clearly interdisciplinary approach to quality development: Negotiation based participation which involves all stakeholders into a negotiation process to define the aims and methods of quality in e-learning.

Providing excellent educational experiences is seen as the main basic purpose of quality development in e-learning. Therefore - although being interdisciplinary - we can call the quality approach an education-oriented quality approach. But what is that?

Education-oriented quality development is concerned with the field of pedagogical practices. It is answering the question how educational scenarios can be structured in a way that enables learners to develop their own relations to themselves, the surrounding world and the object of learning (the topic). This threefold relation structure represents a concept which can be

found in most educational concepts (c.f. Meder 1999, 2000, 2001). The consequence for quality development is to declare the learner's successful development of the three mentioned relations as the main goal of (e-)learning, and as well as objective of quality development.

Having stated that, it becomes clear that at least three principles can be identified for an education-oriented quality development:

1. **Individualised not isolated.** Quality development has to take into account situations, context and characteristics of the learner. It has to be sensitive to the individuals needs within their environment. This does, however, not mean to isolate the learner but can as well mean to place him in a collaborative learning environment.
2. **Participation.** To be participative in quality development means to involve the learner but also other stakeholders and to negotiate the objectives for the quality development processes. This means to allow the learners' to be the defining instance - in collaboration with the other involved actors, like the teachers, administrative staff, etc.
3. **Enabling.** Most institutions and educational scenarios have not yet turned to involving learners into the definition of quality goals and having them participating in quality development. It is important to anchor these concepts in organisational processes, and not leave it to single actors in an organisation. Learners - as well as all other actors - have to be enabled to articulate their needs and requirements.

Having described these principles of quality development in e-learning (and education in general) at least three questions are challenging:

1. **The learners:** Does it really make sense to provide learning offers according to their needs or preferences - and above that - do they know what they want and need? What does learner centeredness exactly mean?
2. **The flexibility:** How can such flexibility be achieved, as it is needed to provide learning according to the learners needs?
3. **The environment:** Are the providers of the learning environments actually capable of supplying their learning offerings in different modes and ways for different target groups?

Without answering the questions right away, one thing becomes clear already: Quality is more than just an evaluation at the end of a course. It is a comprehensive concept which concerns all areas of e-learning. It is a concept which builds the foundation for all provision of e-learning, and

which is based on all processes of e-learning provision.

The article follows the three previously mentioned basic questions for quality in e-learning: At first we will describe the learners needs, based on empirical research results. Secondly, we will concentrate on introducing a new concept to the quality debate - the concept of participatory quality as negotiation, resp. quality as a relation. Thirdly, we will work out competencies which stakeholders in the e-learning process need to act quality literate: the concept of quality literacy.

2. The Learners Needs

A learner focussed quality concept has to be more comprehensive than just focussing on aspects of instructional or technological interface design. In previous research we have shown that it is possible to construct individual preference profiles for each learner [3]. Figure 1 shows the four target groups which group learners whose preference profiles resemble each other into target groups. The four target groups differ very much in their demands for communication and tutor support as well as group activities and social contacts in an online course.

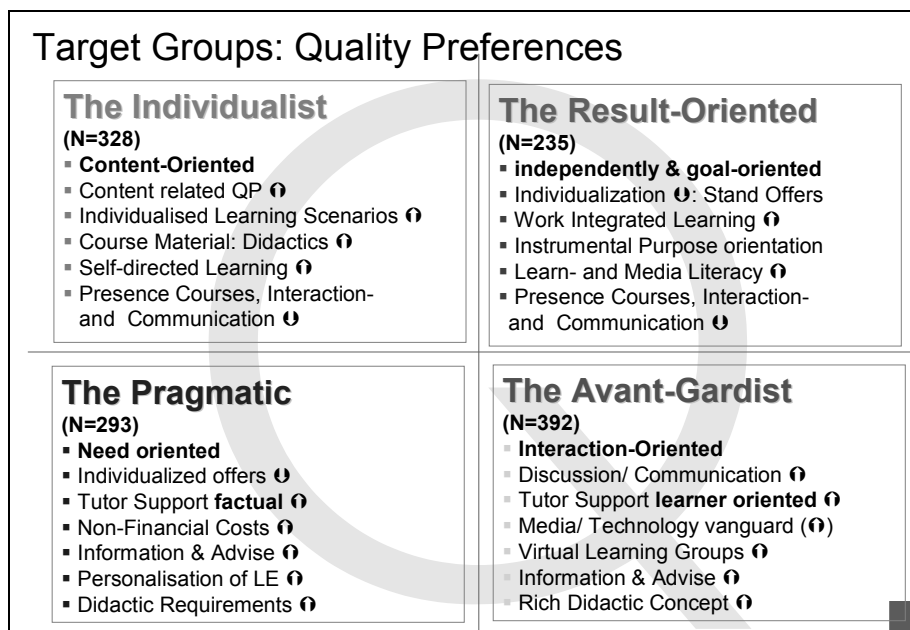


Figure 1: Four quality specific target groups (cf. Ehlers 2004c)

Four results of this research are especially important for participatory quality development:

- Learners are aware of their own responsibility for quality in learning processes - as co-producers of quality learning.
- Learners' quality requirements relate to all stages/ levels in a learning environment and are not restricted to the learning process itself.
- A model of subjective quality consists of comprehensive e-learning-services and is not reduced to quality of instructional design.
- Learners' requirements in e-learning can not be described in one common model of quality, but has to be differentiated into different preference profiles for distinct target groups.

It becomes clear that learner know about their needs and requirements in a very differentiated way. This knowledge can be taken and used as a point of reference for quality development. Learners can thus become partners in a participatory quality development approach. They can take their part in the negotiation process towards finding quality objectives. It would, however, make no sense to use learners

preferences directly and try to realise learning scenarios accordingly. They rather have to be viewed as a reference point and as an imperative to involve learners.

In the field of instructional design a transformation has to take place. Learning environments, materials and methods have to be deliberately developed and used on basis of knowledge of the learners situation.

3. Flexibility Through Participation

To provide learning according to the learners' needs we suggest to conceptualise quality development as a negotiation process in which all stakeholders - and thus the learners - have to participate in. It means to abandon the idea of using only external rules and norms for quality development, and to negotiate the norms and rules amongst the stakeholders. An important part in quality development - the definition of objectives and values - then is negotiated. This has two implications: a) Quality is a continuously ongoing process which is not ending after a defined time when goals and objectives have been defined and measures are in place. They

constantly have to be adapted to the contexts and requirements of learners. b) All stakeholders of the e-learning process are involved and have to be able or have to be empowered to voice their needs in the quality development process. Such a negotiation based approach is a possibility to take into account the learners' situation and at the same time integrate the demands of other relevant stakeholders, as there are teachers, administrators and alike.

Quality development thus has to do with structuring the learning environment. However, it is important to note that quality development and design of learning scenarios/ offerings have to be distinguished. Quality development is not the same as instructional design and/ or didactics. Didactics answers, amongst others, the questions: What has to be learned and how? It is mainly concerned with structuring the learning environment, defining the teaching/ learning subjects and the methodology and learning sequences.

Quality development answers the question: How is the process of selection and defining of learning objectives and learning teaching methodology carried out? In a way it is *supervising* the instructional design process. Moreover, quality development is not the management or provision of learning environments. It is rather the *supervision* of the processes which are necessary to provide and manage learning environments. Thus - quality development always takes on a reference, resp. analysis perspective.

In order to enter into a negotiation process to find objectives for quality development four aspects have to be defined:

- (1) the participating group of persons (stakeholders),
- (2) the object of negotiation, i.e. what has to be negotiated,

- (3) values and norms have to be negotiated and
- (4) a method of negotiation has to be specified.

A practical example: In a school three teachers want to introduce a new course in history. They have to prepare materials, define teaching/ learning objectives and have to find a suitable methodology. For quality development we would now need to define the four afore mentioned factors.

(1) The first factor answers the question: **Who has to be involved in the quality development process?** The participating group of persons, the stakeholders, would be obviously the teachers themselves and the students, learning in the course. In a broader definition we would also take into account the participation of the parents and their interests, of the school management and its interest, we would also have to take into account the interest and rules of the school administration to a certain extent - and in the broadest sense all this happens on grounds of the interest of the governmental regulations. It is important to take into account the views and perspectives of relevant actors and weigh their participation in the negotiation process. Not all of them should have veto rights, for example.

(2) The second factor answers the question: **What is the object of quality development?** The object of quality development in our example is the new program. However, a program is a complex construct of objectives, materials, methodologies, organisation and structure. We can break it down into several components and processes. A concise operationalisation is therefore necessary to isolate certain objects (e.g. the course structure, materials, learning objectives, etc.) in order to enter into a straight negotiation process about how these processes should be carried out properly.

1 Needs Analysis	4 Development / Production
1.1 Initiation	4.1 Content realization
1.2 Stakeholders definition	4.2 Design realization
1.3 Definition of objectives	4.3 Technical realization
1.4 Demand analysis	4.4 Media realization
2 Framework analysis	5 Implementation
2.1 Analysis of the external context :	5.1 Testing
2.2 Qualifications	5.2 Change Control
2.3 Resources (Budget, Schedule)	5.3 Activation
2.4 Environment	5.4 Technical Environment
	5.5 Organization
	5.6 Service concept
3 Design / Conception	6 Learning Process / Realization
3.1 Learning objectives	6.1 Administration
3.2 Concept of the contents	6.2 Learning activities
3.3 Didactic Concept / Methods	6.3 Support of learning activities
3.4 Roles	6.4 Review of Competency Level
3.5 Organizational Concept	6.5 Support of transfer
3.6 Technical Concept	
3.7 Design Concept	7 Evaluation
3.8 Media concept	7.1 Evaluation planning
3.9 Communication concept	7.2 Performance evaluation
3.10 Test / Evaluation	7.3 Data Analysis
	8 Optimization / Improvement

Figure 2: Reference Processes (ISO 2004)

It is important to note that not all of the defined stakeholders need to be present for all negotiation objects. The parents for example would probably not be interested to participate in questions of administration (e.g. room scheduling, staff planning, etc.) and the administrative staff would probably not be interested to participate in curriculum planning. To define the objects of negotiation thoroughly, is a critical factor in quality development. It is - obviously - a difference, if one takes into account *all* processes of developing a new course - from the needs analysis, the conception and design phase in which the materials are developed, and the process of introducing the course to the students up to the evaluation process - or if one lets only some of these process to undergo quality considerations. It is therefore useful to first identify a set of processes for which quality has to be developed.

One possible point of reference for this identification procedure can be taken from the ISO reference Framework (fig. 2) which is currently developed in several projects for these purposes (c.f. ISO 2004). It covers prototypically all processes necessary to develop a new e-learning program. For the given example we can choose processes which have to be covered in the quality development, e.g. the "needs analysis" process, the "conception-" and "design process" or the "learning process".

(3) In a next step we would then have to answer the question: **How is quality defined for each process step?** This question relates to possible quality models, e.g. pedagogical instruction design models or technical- or business models. At this stage quality development needs norms and values which show 'good' quality. These can

be specified in criteria catalogues (e.g. criteria catalogues from Bitter/ Camuse 1994) or guidelines (e.g. Stiftung Warentest 2001) or evaluation models (e.g. Fricke 2002, Kirkpatrick1994, Stufflebeam 2000 , Reigeluth 1983) or instruments - sometimes also in implicit models based on actors experiences and expertise (Ehlers 2004b). Coming back to the example from the beginning, the teachers in the conception/ design process could for example decide to choose an instructional model of self-organised, collaborative learning. The quality therefore would be high if this goal would be met in the learning situation. For that reason, they would have to choose an analysis instrument which is capable of examining exactly this goal.

(4) The fourth and last step then has to answer the question: **How is the negotiation process performed?** Methods of negotiation have to be defined and the questions of responsibility have to be clarified. It is important to weigh the votes of stakeholders for the decisions which have to be taken - not everyone is equally responsible for every decision. In our example a series of workshops would have to be organised for the teachers themselves, for presenting the ideas and discussion them with parents and all other stakeholders.

To answer the question from the beginning of this chapter: The required flexibility can be achieved by involving all actors into the negotiation process. They all participate in the process of defining the quality objectives and the criteria which are necessary to decide if an objective has been fulfilled or not. The described factors characterize the negotiation process and can be taken as a basis for structuring further research

activities. A still burning question, for example, is, what kind of organisational culture is necessary for allowing such participative processes.

4. The Environment

Are the stakeholders of the learning environment actually capable of serving their learning offerings in different modes and ways for different target groups? This question relates to the problem of individualisation. How can the flexibility in quality development proposed in the previous chapter, be realised in quality development?

Such a process of participation and negotiation, as suggested, challenges beliefs and existing values of all actors involved. The nature of quality development is then a constant adaptation process of the offered educational services to the target groups which are to be educated. Newer approaches highlight the aspect of negotiation as one very important for successful quality development (c.f. Ehlers/ Fehrenbach 2004).

This relates especially to the open nature of quality which in itself is not a normative definition but a relation between the perceived and the offered provision. Within this open concept of quality development, we can identify four steps users have to engage into, to develop quality (adapted from the Quality Decision Cycle of the European Quality Observatory: <http://www.eqo.info>, see Ehlers/ Pawlowski 2004). To perform these steps of quality development, several competencies are necessary which we want to refer to as *quality literacy*. They involve

- **Knowledge** about quality development for general orientation and selection,
- **Experience** with the usage of instruments for quality development,

- the ability of innovation and modification to *adapt* instruments and concepts to the own situation or develop new and
- **analysis** abilities for assessing own needs and *evaluate* existing tools and concepts.

To provide a quality enhanced environment in the above described sense, quality literate actors are necessary.

4.1 Quality Literacy

The concept of quality literacy (fig. 3) aims at describing skills which enable individuals in the situation of quality development to act competently. Sometimes these situations are very complex, e.g. when it comes to restructuring whole organisational processes. Sometimes, though, there is only little complexity when only one instrument is applied to perform quality assurance, e.g. a questionnaire at the end of a program or course.

It has to be noted that quality literacy applies to all forms of technology supported education concepts, like e-learning and blended learning - as well as presence courses. We derived the term from the concept of media literacy according to Baacke (1996). As a concept it describes the abilities which individuals need, to act competent in a world which is mediated through media (for further elaboration see Ehlers 2005). There are commonalities and differences between 'traditional' educational scenarios and e-learning. Quality development in both educational domains aims at providing successful education. In e-learning one additionally has to deal with the specific field of technology. Further areas of knowledge apply here. In principal, however, quality development requires the same competences of negotiation.

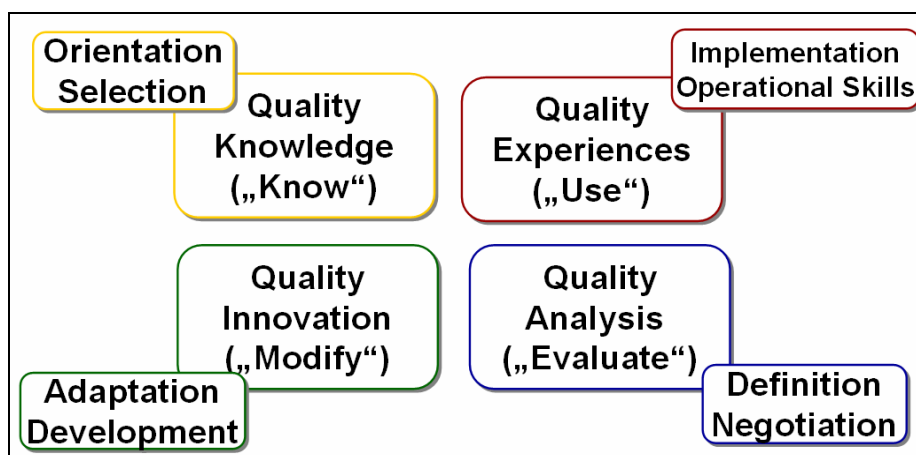


Figure 3: Dimensions of Quality Literacy

Quality literacy is a concept which can not exclusively be learned by means of books or trainings but requires experience and practice. Quality literacy (fig. 5) can be seen as a set of competences which contribute to carrying out quality development.

1. Dimension: Knowledge About Quality

This dimension addresses the "pure" knowledge about the possibilities of today's quality development and up-to-date quality strategies in e-learning. The term *quality strategies* refers to all

guidelines, structures, rules, tools, checklists or other measures which have the goal of enhancing the quality of an educational e-learning-scenario.

2. Dimension: Quality Experience

This dimension describes the ability of using quality strategies. It is based on the experiences actors have with activities in quality development and applying quality measures and strategies to e-learning scenarios.

3. Dimension: Quality Innovation & Adaptation

This dimension relates to the ability which goes beyond the simple use of existing instruments and strategies. It refers to the modification, creation and development of quality strategies and/or instruments for one's own purpose. An innovative and a creative aspect are important for this dimension: Innovation in the sense of further development and adaptation processes of quality strategies within the given system, and creativity in the sense of thinking and developing new strategies for quality development.

4. Dimension: Quality Analysis

Quality Analysis relates to the ability to analyse the processes of quality development critically in the light of one's own experiences and the own situation and context. It is important to evaluate different objectives of quality development and negotiate between different perspectives of stakeholders. To "analyse critically" means the ability of differentiation and reflection of existing knowledge and experiences with education and quality development.

For Learners this would mean to be aware of the responsibility which they have for quality in education as a co-producer of learning success. For providers this means to enable flexible negotiation processes in the educational offers in which individual objectives and preferences but also societal contexts and organisational structures are integrated into the definition of quality objectives for education.

4.2 Quality Development in Four Steps

In the context of the Quality Development Cycle, mentioned above, the dimensions of quality literacy apply to the different steps of quality development (Fig. 4).

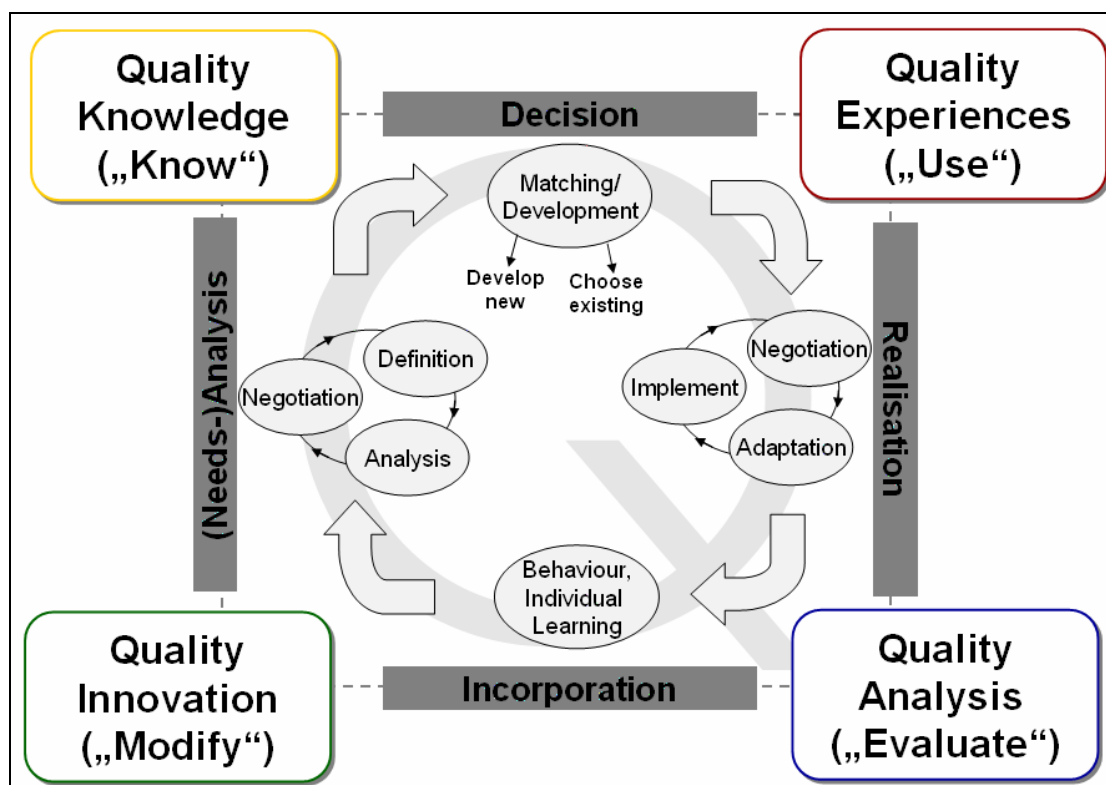


Figure 4: Quality Development Cycle (adapted from Ehlers/ Pawlowski 2004)

According to the presented model (Fig.4), quality development takes place as a sequence of four steps which involve (a) a needs analysis, (b) a decision process, (c) a realisation phase and (d) an incorporation phase. (The cycle thus takes on an organisations' perspective. This is important to note because it is especially developed to answer the question how an educational offer can be provided through an organisation, e.g. a

university, to be of high quality. It is not primarily concerned with helping learners, who have to choose a course or a program, helping them to find an offer of high quality. For each phase in the quality development cycle certain competencies are required for the actors performing the quality development process.)

Needs Analysis: In this phase the needs for quality, the situation and the context of the educational scenario are subject of examination. The needs analysis phase includes in itself an iterative cycle which consists of an analysis phase of the current situation, a negotiation processes between the involved stakeholders (e.g. learners, teachers, administration), and a definition phase where the needs are finally defined.

Stakeholders who are involved in these processes need the ability to evaluate and define the needs of all stakeholders which are involved in the educational scenario and negotiate between them to achieve a high quality of the offered learning environment (*Quality Analysis*). Additionally Knowledge about the possibilities of quality development and about quality strategies or good practice examples could be of help in the needs analysis phase.

Decision Phase: In the decision phase the previously defined needs for quality development are matched with available approaches (*Quality Knowledge* is needed). If those approaches sufficiently meet the requirements, they have to be chosen as model for the quality development project, and the next phase can be entered. If there is *no* strategy which meets the needs, a new, own quality strategy has to be developed. For this phase two competences are especially important: *Quality Knowledge* and *Quality Analysis* skills. When it comes to developing an own strategy the ability of *Quality Innovation*, i.e. creatively and innovatively developing a fitting quality strategy, gains importance.

Realisation Phase: In the realisation phase the quality strategy is implemented into the organisation and thereby adapted to the specific organisations' needs. The new set of rules and processes have to be "transformed" into the organisations' "language" and be refined for the organisations' specific context. This process to a large extent involves experiences, adaptation processes, evaluation and analysis competencies. The usage of models and instruments for quality development like checklists, process descriptions and/or evaluation questionnaires, requires a high amount of *Quality Experiences*. The adaptation of these instruments and models demands for the ability of innovation and modification and is conceptualised in the dimension of *Quality Innovation*. Critical analysis and assessment form an integral part of this phase. *Quality Analysis* thus becomes important.

Incorporation Phase: The incorporation phase relates to the modification of activities and actions which have to be performed by the individual actor of an organisation as a result of the quality development process. Quality development - in the final consequence - is always directed at modifying the behaviour of individual actors of an organisation - be it the tutors or teachers or the

authors of courses, the system administrators or the organisational representatives.

In the incorporation phase it is therefore examined whether the changed processes and new values which are suggested in a new quality strategy are incorporated into the activity patterns of the stakeholders. A great deal of critical analysis skills and evaluation experiences is necessary for this phase. *Quality Analysis* therefore becomes important in this phase.

5. Summary and Conclusion

The article suggests a new approach to quality development in e-learning. (It emphasizes the importance of viewing quality development not as an add-on to e-learning, e.g. as an isolated evaluation approach at the end of a course.

Quality development rather is viewed as a key aspect, occurring in every single development and delivery process of e-learning courses and programs.

From research three concepts can be utilized and combined to a new, comprehensive concept of quality development:

1. Quality development has to lead to better learning. This viewpoint can be called education-oriented quality development and emphasizes that quality development has to take into account the learners' situation. Learners' preferences are analysed to show that they cover a multitude of factors and preference profiles. This suggests that quality approaches have to be highly flexible and allow for individualised quality.
2. Quality development, however, has not only to take into account the learners' needs. It is rather a process in which the interests and requirements of the e-learning stakeholders have to be considered as a whole and combined to a comprehensive concept. Quality in this respect is seen as a relation between the demands and needs of a stakeholder group and the actual delivery of e-learning. In order to shape this relation in the best possible way a negotiation process is necessary which involves all stakeholders and integrates their preferences and situations against the background of the given economical and organisation situation. These negotiation processes occur in different positions of the learning environment. We suggest utilizing process models like the ISO Reference Model.
3. The third part of the concept is concerned with the question how existing concepts, approaches and strategies can be used for quality development. A decision cycle is being

suggested which allows to find a suitable quality approach for a given context. However, to decide which quality approach is suitable, to choose from a set of possible strategies, and to adapt those strategies to the specific situational context certain competencies are necessary. For these competencies we developed the concept of quality literacy. It covers competencies like knowledge of quality development, experiences in using particular instruments, modification skills and the ability of thoroughly analysing ones own situation and needs.

The three described conceptual fragments are combined to a new approach to quality development which is comprehensive, takes into account the learners situation and at the same time asks for needs and requirements of all other stakeholders, and puts forth the importance of stakeholders' competencies for quality development apart from tools and instruments. Because of its open nature and of involving stakeholders into the process of quality development the approach can be called participatory approach to e-learning quality.

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Annotations

[1] In this article we use e-learning in a broad sense. This covers all kinds of technology enhanced teaching/ learning environments and also relates to all forms of blended learning.

[2] The terminology for the transformation of society into a knowledge based, information based, media based society are divers. There are constantly new concepts which show that the industrial age has come to an end: „Global Society“ (Rost 1996), „Knowledge Society“ (Stehr 1994), „Media Society“ (Mettler von Meiborn 1994) or „Information Society“ (Bühl 1995). They all focus on one and the same phenomenon which is described as „knowledge Society“ in the article, as it is elaborated in the theory of knowledge Society by Peter Drucker (1969), Daniel Bell (1973) and Nico Stehr (1994). entwickelt wird. This theoretical approach is especially interesting for education because it focuses not only on scientific knowledge but emphasizes the rising importance of knowledge as a basis for social interaction and relations.

[3] The presented survey 'Quality from a learner's perspective' analyses quality from exactly this point of view. Two goals are being aimed at: First, the research is concerned with the question (1) which dimensions are constituting quality in e-learning from a learner's perspective; that is: which quality aspects, dimensions or criteria are important for learners? Secondly, quality is no longer viewed as a concept in which the same quality approaches or quality criteria apply to all learners, but rather (2) where different learners have different preferences regarding quality in e-learning. The empirical results clearly confirm this hypothesis. For the first time at all the research project makes available an empirical based classification of subjective quality concepts in e-learning. Thus now there is a basis for learner focussed quality development in E-Learning.

The survey used qualitative data as well as quantitative data. The connection between these different approaches - also known as the methodological concept of triangulation (cf. Treumann 1998) - enables researchers to gain a more in-depth insight into the field of subjective quality preferences. The survey was conducted in two phases: First a qualitative inventory was gathered from interview data of 56 interviews with learners who had considerable experience in the field of e-learning (at least 10 hours). This inventory formed the bases for a quantitative research phase in which 2000 learners from different educational sectors, ages and backgrounds answered a questionnaire on their quality preferences for e-learning (n=1994). The data were then analysed using multivariate statistics - principal component analytical and cluster analytical methodology.

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