Learning Partnership
„E-learning in Vocational Training“

eTRAIN

QUALITY STANDARDS IN E-LEARNING

- MANUAL FOR TEACHERS AND TRAINERS -

Education and Culture DG

Lifelong Learning Programme

Index

Introduction

The learning partnership “eTRAIN – E-learning in Vocational Training” was founded in oder to examine the application of e-learning and blended learning in advanced vocational training and to elaborate common quality standards. The research is carried out in the frame of the Lifelong Learning Programme of the EU.

One of the first steps of the learning partnership was to carry out a general overview concerning the implementation of e-learning in the participating organisations. This was done by an illustration of the different e-learning systems in use (OVERVIEW - Part 1) accompanied by an inquiry on e-learning made through different questionnaires addressed to learners and teachers as well as to the administrators and the management (OVERVIEW – Part 2). The findings were summarized in a COMPARATIVE STUDY and followed to a broader discussion among the partners on QUALITY STANDARDS in e-learning. The focus is laid on standards in didactical respects and the results are documented in this study here.

Partner organisations in eTRAIN are schools and vocational training centres from the following countries:

- Germany: gbb Gesellschaft für berufliche Bildung, Goerdelerstr. 47, 42651 Solingen, www.gbb-solingen.de (Coordinating organisation)
- Bulgaria: National Training Center, 224 Tsar Boris III blvd, 1619 Sofia, www.educenter-bg.com
- Portugal: Instituto Politécnico de Leiria, Rua General Norton de Matos, Ap 4133, 2411-901 Leiria, www.ipleiria.pt
- Romania: Grup Scolar Agricol Mihail Kogalniceanu, Str. M. Kogalniceanu Mo 1, 707305 Miroslava, http://miroslava.licee.edu.ro
- Turkey: Giresun Eğitimciler Derneği, Gazi caddesi Aydin Çarşısı, No 91/13, 28100 Giresun, www.giresunegitimciler.org

The learning partnership will be effective from Aug. 1st, 2008 to July 31st, 2010.

1 Foreword

In order to be able to make use of the entire potential of the new and innovative learning method ‘e-learning’, one principally needs to take account of the interaction and the cohesion of all the quality components. The standards presented here are directed at teachers and instructors who use these new learning methods. The aim is to present comprehensive quality criteria for all the major aspects of the didactics of e-learning.

The study bases on a manual published in Austria by funds of the Ministery of Education, Science and Culture[1] and summarizes the various discussions conducted at the transnational meetings within the eTRAIN-partnership. Consequently this manual examines the quality criteria of e-learning didactics and is a manual for all teachers and trainers. The results of each chapter are summarized in a checklist of quality criteria.

2 Quality Criteria for Didactics

In using e-learning it is not primarily a question of having discovered the best type of media but rather how well the teacher succeeds, with the help of a particular kind of media, to convey the course content optimally and to help along the learning process. The quality of any teaching event is primarily marked by achieving the desired learning results. Whether or not these are achieved depends among other things on the organisation of the learning environment and the individual standard of the teachers and learners. E-learning can be organised either focussed on content or focussed on the learner (teacher). In both cases teachers organise and support the learning process. We focus here on the quality criteria for didactics and on the organisation of learning scenarios for learners and teachers.

2.1 Framework of Reference

In order to put in place new learning environments a basic framework of reference has to be created.

2.1.1 Technical Framework of Reference

The organisation of a an adequate infrastructure is the basic requirement for the success of the installment of new learning environments. Every learner needs internet access. Furthermore one should consider carefully which types of technology can be used by the

[1] vgl.: Kristöfl, R., Sandtner, H., Jandl, M. (2006): Qualitätskriterien für E-Learning, Ein Leitfaden für Lehrer/innen, Lehrende und Content-Ersteller/innen, Wien

teachers and which types of technology can be accessed by the learners. Are there limitations to access and download facilities which should be taken into account here? In addition there should be a person on hand for the teachers and learners, responsible for technical problems during teaching events in case the teachers are not responsible for the hardware and software used. As a rule, queries regarding problems and doubts should be dealt with within a clearly defined period of time. If the period of time is too long, the motivation of the learners can be nagatively influenced. A virtual space (e.g. a learning platform with the modules administration, content, communication, group space and tools for performance control like tests, for example) is absolutely necessary. A learning platform supports the didactic method and ensures stability and attainability. This learning platform is supposed to offer areas of communication which do not only apply to teaching events. They should also include visually attainable results and futhermore it must be possible for the personality of the individual learner to play its part (e.g. by way of downloading photos). A prerequisite is a user-focussed access.

2.1.2 Prior Knowledge of the Learners

Essentially, the learner should have sufficient motivation for self-guided learning and for co-operation with other learners. Additionally, the following requirements for the use of the new learning environments are necessary:

- Basic computer knowledge,
- Experience with the corresponding network facilities (browser, groupware etc.),
- The chance, as well as the ability, to facilitate the space necessary for the units of learning/learning activities at work or at home,
- The ability to help oneself in case of problems or alternatively to address the person responsible,
- Communicative skills in order to facilitate the exchange between teachers and/or other learners.

2.1.3 Demands on Teachers

It should not be neglected that the teachers, too, need previous knowledge in dealing with information and communication technologies. Many teachers are not familiar with the necessary technology and are not knowledgable about the possibilities for use of the new media with regard to training and further education. If this is the case, a suitable training course for the organisation of new learning environments should be taken advantage of (e.g. „Train the trainer“ courses). For the execution of a learning event which contains net-

based communication and co-operation, there are new modes of behaviour required on the part of the teachers. If the teachers want to conduct a video conference, for example, they don't only have to have the technical knowledge but they also need to know how to ensure the attention of the learners throughout the video conference. For the teachers this type of teaching means a different style of communication: they have to advance more slowly and need to include redundant phrasing. In this way the initiation of collaborative learning scenarios calls for a change of thinking with regard to conservative teaching methods, as group activities need a different kind of structuring than do traditional courses. Collaborative learning is based on a learner-centred model and so, before making the decision to use it, one should take into account certain aspects.

2.1.4 Resources of time

The amount of work involved for the teachers should be clearly defined from the outset. This applies to the volume of work concerning self-learning units as well as the work completing online and face to face teaching units. The time frame should be well thought out by the teacher. Teachers should be very clear from the outset about how much time they and the learners will need for any given online activity and what needs to be done up to what time. It should be noted that a certain amount of time for co-operation is needed for co-operative learning, in order to put in place the necessary structures of co-ordination. Equally, the learners should be given sufficient time to adapt to the virtual learning environment.

2.1.5 The exchange of materials and the professional development of the method

The didactic methods, the instruction design concepts, the learning materials, the contents as well as the evaluation reports of the e-learning concepts and scenarios in practice are all objects of learning. They should be documented, be available for other teachers, be exchanged and discussed. An exchange of know-how, of the learning objects and of the 'good practices' in e-learning makes it possible that knowledge can be re-used and developed further and that teachers have access to existing know-how. On the concept of exchange of e-learning scenarios, a 'community of practice' for professional further development of method can be founded in an institution or between several institutions.

2.2 Instruction design for e-learning

In order to use e-learning effectively in a teaching event, a didactic and paedagogical concept of the individual teaching units and learner activities is necessary. The term

'instructional design' is very widespread and indicates a systematic development of the specifications for a teaching event on the basis of teaching and learning theories, in order to safeguard the quality of the instruction. The instructional design for e-learning is concerned with the specific use during a teaching event (for example, instruction at an institution of higher learning, instruction in the work place, instruction at school), the actual conditions the learners are working under, the learning content, the technology used and the chosen didactic methods. It contains the organisation of the didactic materials, learning activities and tasks for each teaching unit as well as its testing and evaluation.

2.2.1 Specification of the learning objective

One of the first steps in the instructional design is the specification of the learning objectives. With the help of the learning objectives, the teacher formulates his intentions regarding particular changes to the structure of a learning unit. Learning objectives indicate what is to be achieved (component of content) and how this is supposed to be achieved (component of method).

The main task in the construction of a classification of learning objectives is the improvement in communication. Learning objectives can be classified under cognitive, affective or psychomotoric functions and should be thus defined by the teachers at the outset.

Classification of the learning objectives:

	Cognitive knowledge: facts, terms, knowledge of rules
	Understanding: explanation in own words
	Use: transfer of a general rule to specific cases
	Analysis: into separate elements, factors, dimensions
	Synthesis: the identification of connections
	Evaluation: according to logical coherence and normative criteria
Psychomotoric:	The development of **manual faculties**
Affective:	The development of **experiences and impressions**
	Attention: passive awareness, readiness for active taking in.
	Reacting: tolerating as reaction, readiness for active reaction, experience emotional dismay
	Form views and values: understanding of values, preference for certain values, to be accountable for certain values

2.2.2 Specification of the target group

Specifications as to learning on the part of the learners are the background against which learning takes place and should therefore be incorporated into the instructional design early on.

Personality indicators: e.g. visualiser-verbaliser, three-dimensional imagination, belief in learning strategy, belief in the power of learning

Cognitive indicators: e.g. prior knowledge, learning strategies, visual competence, media competence

Indicators of individual emotion: e.g. motivation regarding the learning content; positive-negative acceptance of the learning material and its component on offer

Indicators of individual interests: e.g. the direction of the intrinsic motivation, how much focussed on learning objectives, how much on fun; general interest in further education and training; focussed exam preparation

Social indicators: capacity for teamwork, ability and readiness to communicate, structure of divided/distributed knowledge in a group of learners, degree of familiarity between members of a group. Learning activities should take the best account possible of the indicators relevant to learning on the part of the learners. That is not an easy task as on the one hand the variation between learners can be considerable and on the other the indicators relevant to learning also vary from person to person and depend on a number of factors like, for example, the learning situation, the teaching unit and/or the context.

2.2.3 Learning and teaching theories

The preparation of the teaching units and the learning activities should be based on up to date learning and teaching theories. Up to date, constructional teaching and learning theories are based on three basic principles:

Learning is doing:

- Learners should not only learn/consume factual knowledge but should also undertake meaningful activities.

Learning is social:

- Learning is a social process which is being transmitted by social activity and the joint use of tools.
- Social interaction like conversation, argumentation, and reasoning are necessary for the construction of knowledge.

Learning is context related:

- The context is important.
- Learning encompasses more than comprehension and knowledge.
- Extensive implicit knowledge of the 'world' and the socio-cultural context in which this knowledge will be used, is necessary.

2.2.4 Pedagogical approaches and didactic methods

Pedagogical approaches, based on the above mentioned teaching and learning theories, will be successful, if they are transformed constructively in e-learning scenarios and didactic concepts. It has been found that the following pedagogical and didactic methods can further successful learning and the acquisition of practical, usable knowledge.

Collaborative learning:

A collaborative learning scenario enables the learners to take resposibility for their own learning, discuss their different views in their areas of interest, exchange arguments for and against and assist each other.

Project based learning:

In project-based learning environments, collaborative working is particularly furthered, targets and individual tasks are being defined beforehand. The authentic context heightens the learning activity as well as the motivation of the learners.

Inquiry based learning:

Learners develop their own thinking and learning structures by initiating queries about tasks via the internet.

Knowledge building communities:

These are based on the following line of thought: learning platforms should not superficially be regarded as a 'medium for transportation' of content but rather the learners should be encouraged to become part of a large learner/learning community.

2.2.5 Specification of face to face and online-learning activities

A teaching unit consists of clearly defined learning activities like, for example, the communication of contents and knowledge, exercises, group work, seminars, discussions, projects, evaluations and feedback. The definition of learning activities is not only important for the preparation of the theory, it also plays a large role for teachers wanting to use e-learning elements in the theory. Teachers should therefore think about the following:

- Of what learning activities is a teaching unit comprised of?
- The learning activities define the process of reaching the targets. They should be suitable for the reaching of those targets.
- The learning activities should take into account the characteristics relevant to learning on the part of the learners. Variety and variations in the learning activities ensure that the learners make use of their own strenghts in order to reach the targets.
- The learning activities are based on up to date paedagogical approaches and didactic methods.
- Where are direct forms of action necessary?
- During which phases would indirect forms of action be helpful (conversation during instruction, role-play etc)?
- Learning through participation and experience should be at the centre of the didactic efforts.
- To mind come teaching methods which stress the active participation of the learner: communication in the round, panel discussion, guided exchange of experience, group work, partner work, case study, project method, brain storming, tests, Planspiel, sensitivity training, role-play, on-the job training, behaviour training, didactic training, discussion, debate, incident method and conference method.

- What is the sequence and in what kind of time frame are the learning activities being conducted?
- In order to foster inquiry-based learning the following sequence would work well: a) project, b) group discussion, c) feedback by the teacher and d) lecture.
- The next teaching unit could start with an information based activity, which makes use of prior knowledge, summarizes and repeats. Then the new knowledge can be added to the prior knowledge in the learning process.
- How many face to face and how many online phases are there? Teachers are either responsible for planning a given number of online phases or they can determine the extent of the online and face to face parts.
- Which learning activities can can gain from information and communication technologies and how?
- Which learning activities can gain from face to face teaching and how?
- How do online and face to face activities complement each other? The concept of 'blended learning' demands communicative links between the face to face parts and the virtual parts.
- How is the teaching unit checked? Which learning activities are being evaluated and which serve as promotion of the learning process?

2.2.6 Time

It is of great importance that enough time is set aside for the assimilation of the e-learning part. E-learning activities should not be introduced in addition to the working schedule, so that the learners are not overtaxed. With respect to a lecture, its duration as well as the start and the finish of it should be known beforehand; during these activities one is usually not disturbed. If in the case of asynchronous e-learning activities the duration of it has not been stated, learners often complain that e-learning is very time consuming. In order to avoid such aspects, the teachers should think about the following:

- How long is the preparation of an online activity?
- How long does the the execution and supervision of an online activity take?
- What are the learners supposed to do exactly (and until when)?
- How much time do the learners need for the execution of an online activity?

In the beginning learners need more time in order to plan and execute online activities. Besides that, they cannot estimate exactly how much time they need. These are competencies which demand training and experience.

2.2.7 Media support

Once an online learning activity has been defined (for example a group discussion on a particular subject before a frontal talk) the teachers should supply suitable media support. There is a big selection of 'freely accessible' and commercial products amongst which one can choose. The chosen media should:

- support the desired interaction (for example, uploading and downloading of documents etc.)
- be user-friendly. A badly organised system can be unhelpful to the learning process
- be accessible. The extent of the accessibility is defined by the character of the target group.

2.2.8 Evaluation

Beginners need more time and opportunities for practice than experienced teachers in order to design, organize, execute and look after online activities. The development of a concept of evaluation is mandatory. Based on this concept of evaluation, the learners are continuously evaluating their learning process as well as the concepts, instructions and materials accessible to them. The points of action derived from the evaluation results should be converted as soon as possible.

2.3 Learning in e-learning scenarios

In contrast to traditional learning where the learners find themselves in a social environment, in virtual learning the object of learning is the focus. The accompanying communication provides the necessary support.

2.3.1 Communication of expectations and transparency of the learning event

The actual communication starts even before the beginning of the task. Potential learners should have the opportunity to inform themselves about the framework and about the didactic design of the teaching event.

2.3.2 Support of learners

An important area is the support of learners. It is not enough to provide the technical framework and to hope that the learning interaction will happen by itself. Support can come from very different groups of people like tutors, experts, presenters/moderators, other learners or through the specific use of teaching methods. In any case, the tutors or

presenters/moderators should be well trained for this. As well as having a suitable training the teachers should also be prepared to moderate the communication connected to learning on a continuous and intensive basis and to give feedback. Learners need feedback from their learning processes and not only as far as the academic subjects and the method of learning is concerned. The learners should know to whom, when and how they can address questions and when these questions will be answered. One of the basic concepts for the use of e-learning, which every teacher should be aware of, is an agreement of rules between teachers and learners.

2.3.3 Emotions

Despite the careful selection of a high quality medium (e.g. a learning platform) e-learning produces strong emotions amongst the teachers and learners. A certain amount of frustration during online activities (connected with technical problems) is common, even if the learners are adequately computer literate. This type of frustration, however, can easily be overcome by offering technical support to the learners and in leaving sufficient time for the learners to become familiar with the technical set up.

More important than the technical side is the personal attitude of the learners and how they feel during the online activities. Strong emotions are caused by

- the value of an activity not being evident to the learner,
- an activity not being authentically and situation-specifically formulated and
- when the teachers and learners cannot structure and handle their time efficiently.

2.3.4 Performance checking

It is important to learners that they themselves can check and evaluate their knowledge or/and acquired abilities (Tergan, O.J.). For this there are several didactic and technological possibilities available. The selection includes simple multiple-choice questions and completion exercises as well as more complex interactive exercises which are therefore more complicated to implement. The second component is the checking of the performance by the teachers. For this, clear guidelines for the evaluation of the learning results should be laid out by the teachers. The learning results of the learners should be evaluated according to these guidelines. The information concerning these guidelines, necessary for the successful completion of the learning process, should be communicated to the learners. With the help of this type of structuring and the additional adherence to individual responsibility for the learning process, negative effects as they are common in traditional group work (uneven distribution of work, tensions within the group) can largely be avoided.

2.3.5 Additional Value

This is also the point in time to ask oneself, in how far can one differentiate between the thus produced e-learning approach and other forms of learning approach and if any additional use can be generated from it. A basic point of consideration here would be the reaction of the learners to the new approach. A positive reaction as, for example, acceptance or a high user frequency of the new method would be an important pre-requisite.

2.3.6 Profitability

Obviously one also has to consider the cost for the provider at this point. In the area of training and further education profitability is also an important factor. An implementation will take place if the cost of the new format is lower than that of the customary one, if it can be of additional use or if both these factors apply.

2.4 Collaborative e-learning scenarios

The learners are the focus of the collaborative learning scenarios. They interact not only with each other and with the teachers but also with the texts, objects, the internet, in small and large groups, with the whole class, in pairs etc. The task of the teachers in this case is not to convey knowledge , but to design a pedagogically intact and functioning instruction design and to encourage discussion. All the quality criteria in 'learning in e-learning scenarios' are also important in collaborative scenarios.

In this chapter we are dealing with additional quality criteria specific to collaborative online learning activities. The new media are very well suited for collaborative learning. Scientific examinations in the area of e-learning show that the new media further collaborative learning more than face to face scenarios (Pincas,1998; Pelz, 2004).

The main arguments for that are:

- Quantity and quality of the online-interaction (exchange among learners and among learners and teachers) is higher than in face to face scenarios (Pincas, 1998; Pelz, 2004).
- A higher quantity and quality of interaction are the main criteria for the quality of the learning process of teachers and learners (Pincas, 1998; Pelz, 2004).

Some examples of collaborative learning activities are: discussing, the search for and the discussion of websites, peer writing, the mutual evaluation of writing, case work examples, etc.

2.4.1 Virtual communication competence

Competence in areas such as the organisation, preparation and presentation of collaborative online learning activities like, for example, communication sequences, discussions and teamwork, should be acquired by teachers and learners. Every communication medium demands preparation, presentation and an understanding of the communication processes and approaches. As far as the learners are concerned, the ability and readiness to communicate, as well as the ability to work in a team, should be taken into account and encouraged with collaborative online learning activities. Learners should be able to experience how they can communicate through online activities.

2.4.2 Media support

The purpose of the communication should be clearly defined in order to choose the right medium for it. Communication technologies differ with a view to their choices of communication.

Some examples with respect to media, their uses and difficulties in communication are:

- Synchronous communication media are dependent on place and/or time. Independence of time and place increase the learning flexibility.
- In order to lead negotiations or to come to a consensus, a synchronized medium would be better than an asynchronous one, because it is not necessary to wait for an answer.

- The absence of non-verbal information can lead to misunderstandings.
- Misunderstandings can be solved more efficiently with the help of synchronous and visual media (video conference systems do not always support the transmission of non-verbal information).
- An asynchronous medium is very suitable if the learners need time to discuss content (concepts, texts, learning objects etc.) and to think through comments.
- An asynchronous medium offers all learners the chance to participate actively in a learning activity, to express themselves correctly without being interrupted and to participate in several discussions simultaneously. Furthermore asynchronous communication media offer a transcript of the interaction. The cohesion of the discussion appears difficult when it comes to so-called 'turn taking' processes and the reduced focus in a topic for discussion.
- In order to avoid an overloading of learners and the resulting chaos, teachers should be good and intensive presenters/moderators and/or use a systematic interaction process.
- Ex-cathedra teaching and group learning activities at the beginning help the learners to get to know each other. That also strengthens the feeling of cohesion amongst the learners during the online phase. Besides, a community feeling can be more easily built up online, because learners exchange personal information more often during online discussions than if they were sitting side by side in the classroom.
- The introduction of conference systems is already accepted in lectures and offers possibilities of interaction for the learners. Such systems, however, also mean a higher degree of organisation and co-ordination on the part of the learners.
- Video conferences allow for a higher degree of interaction but need good preparation as well as an intensive moderation of the discussion.

Teachers and learners should be able to choose from a number of available communication media and to organize and co-ordinate the communication processes accordingly.

2.4.3 The quality of collaboration

In this part quality criteria for the evaluation of collaborative learning processes are being suggested. Contributions which add additional value to the learning process are offered through 'social presence', 'cognitive presence' and/or 'teaching presence'.

Social presence:

Contributions which contain personal information increase the cohesion of the group:

- The showing of feelings, emotions and moods
- The acknowledgement that a contribution was received, read and understood and that someone was thinking about making a contribution
- The demonstration of common goals, engagement, responsibility

Cognitive presence:

A cognitive presence can be demonstrated in a discussion through the contribution of factual knowledge, conceptual knowledge and theoretical knowledge. The value of such a presence can depend on factors like clarity, exactness and the extent of the knowledge.

Teaching presence:

The term 'teaching presence' signifies the simplification and helpfulness of cognitive and social processes.

Principally there are two ways in which one can incorporate 'teaching presence' into the discussion processes:

(1) A simplification of the discussion

a. Identification of areas of agreement and disagreement
b. Find a consensus
c. Support for the learners by agreement
d. Create a 'learning environment'
e. Prompt answers without long delays
f. An estimation of the effectiveness of the discussion process

(2) Through direct action

a. Presentation of content and questions
b. Focussing of the discussion
c. Summarizing the discussion
d. Confirmation of the understanding
e. Solving of misunderstandings
f. The gathering of knowledge from different sources
g. Answers to technical queries

2.5 E-learning content

Technical aspects of the e-learning content are being dealt with in the following chapter. It's a matter of making sure of a high didactic quality in the use of teaching and learning materials, the safeguarding of the future use of the developed materials for everyday use and the didactically sensible integration of developed content in the most varied circumstances.

2.5.1 Actuality and authenticity

Unavoidable quality criteria for content are rational correctness, the actuality and authenticity of the content. Authenticity depends on the extent to which the content lives up to the tasks in everyday application. Learning opportunities should be achieved by concrete, realistically represented activities while the necessary abstraction is to be created by the learner himself.

2.5.2 Meta data

If the content has not been entirely newly conceived for virtual teaching but instead one is already using an existing e-learning content, then it is especially important to be careful about the didactic quality. The teachers have had their own thoughts about the use and transformation. The accumulation of learning materials by way of standardized meta data raises their value, especially with a view to using them again.

2.5.3 Learning support through individualized content

In the area of content as well, one can do a certain amount to support the learners in their learning. The content can be individualized by the learner in using notes or else bookmarks. Also the learner should be given the choice of several media.

2.5.4 Additional value of the e-learning content

As already mentioned, e-learning offers have additional value. A similar thing is true for the content. A simple transfer of offline-content into online-content will be too little to generate any additional value for the learners. The specifically medial characteristics of the online-media will have to be taken into account. But not everything that can be realized technically makes sense didactically. Multi-medial contents and interactive learning elements (e.g. simulation, testing oneself, and interactive exercises) should only be developed in such cases where the understanding of complex connections can be lastingly improved.

2.5.5 Representation of the contents

Baumgartner differentiates between performing (presenting), acquiring (problem orientated) and explorative (constructive) teaching methods. The straight presentation of content supports more strongly the performing teaching methods. Acquiring and explorative ways of teaching on the other hand, demand forms of interaction of the learners with the learning object as well as with other learners. The correct chronological order of the elements of the learning opportunity has a beneficial effect on the learning outcome. Attention should be drawn to the fact that the compatibility of the content of different units of learning can be made obvious through linkage.

2.6 Checklist[2]

Framework check

Technical aspects	Check
Technical environment	
• Learners have access to well equipped computers in the institutions of learning.	
• Learners have the necessary infrastructure at home.	
• The technologies used can be operated by teachers and learners.	
• In case of technical problems there is a helpdesk for teachers and learners.	
• A stable, virtual space (e.g.a learning platform) is available for all participants.	
Prior knowledge of the learners	
The learners have sufficient knowledge and experience in these areas:	
• Use of computers	
• Use of networks	
• Communication	
• Self control and self motivation	
Demands on the teachers	
The teacher has knowledge in the following areas:	
• Use of computers	
• Use of networks	
• Possibilities of the use of new media in training and further education	
Time involved	
• For coping with the teaching event is clearly defined	
• For the learners for the entire teaching event is well planned	
Know how in e-learning is being exchanged	

[2] vgl.: Kristöfl, R., Sandtner, H., Jandl, M. (2006): Qualitätskriterien für E-Learning, Ein Leitfaden für Lehrer/innen, Lehrende und Content-Ersteller/innen, Wien, Page 25ff

• Inside the institution of learning	
• Between the institutions of learning	
Instruction design for e-learning	
Specification of the learning targets	
• All learning targets for the teaching units and learning activities are clearly defined.	
Specification of a target group	
• Characteristics relevant to learning are identified.	
• Characteristics relevant to learning are considered in the instruction design process.	
Theories of teaching and learning	
• Learners are active, construct knowledge and comprehension through sensible learning activities.	
• Learners learn through social interaction.	
• Learning activities are context driven.	
Learning activities are fostered by	
• Independence of the learners	
• Strong participation and activity of the learners	
• Collaboration	
• Joint construction of knowledge	
• Implicit knowledge	
• Complex thought processes	
• Learners are part of a 'community of practice'	
• Learning activities are concerned with real situations and problems.	
Specification of frontal teaching and online- learning activities	
• The learning activities of each teaching unit are clearly defined.	
• The learning activities help the learners reach their learning targets.	
• The sequence of the learning activities is sensible and clearly defined for each teaching unit.	
• The ratio between online and face to face teaching is clearly defined for each teaching unit.	

• Learning activities for each teaching unit are sensibly proportioned in online and face to face phases. The online and face to face activities complement each other.	
• Criteria for evaluation and method are clearly defined.	
Time	
• For the teachers the time for organisation, preparation and moderation/presentation is calculated in advance.	
• For the teachers the time for looking after and moderation of the learning activities is calculated in advance.	
• What the learners have to do (and until when) is clearly stated for each learning activity.	
Media support	
• A suitable type of media support is chosen for each learning activity.	
• The chosen media support the desired interation (e.g. Up and down loading of documents, asynchronous written interaction, etc.)	
• The chosen media are user-friendly.	
• A badly designed system can obstruct the learning process.	
• The chosen media are accessible. The extent of the accessibility is defined by the characteristics of the target group.	
Evaluation	
• A plan of evaluation exists for each teaching unit and for the entire teaching event.	
• The instruction design is adjusted as needed and/or changed.	
Learning in e-learning scenarios	
Transparency of any steps taken	
• The aims of the teaching event and of the teaching units were communicated to the learners.	
• The aim of a learning activity has been clearly defined for the learners.	
• The time frame, the working method, the learning process, the expectations and the effort were plainly communicated to the	

learners.	
Support of the learners	
• Learners can ask for task-related help and personal support from the tutors, experts, presenters/moderators and peers.	
• The online-tutors, experts, moderators/presenters or peers have been specially trained for this.	
• There exist **clearly** defined rules between teachers and learners.	
• Learners are supported in the understanding of how to cope with their emotions and time online.	
Perfomance check	
• Learners receive constructive feedback concerning their learning success.	
• The teachers are available to the learners for questions.	
• The learners know about the criteria for any performance check.	
Additional value	
• The learners accept the e-learning scenario.	
• The e-learning scenario has a specific additional value for the learners.	
Profitability	
The e-learning scenario used	
• is cheaper than the former one,	
• has an obvious didactic additional value compared with the former one.	
Collaborative learning	
Virtual communication competence of the teachers:	
• Competence with regard to the organisation, preparation and moderation/ presentation of online-learning activities	
• Clearly defined (group) learning targets and learning activities and a clear communication with the learners	
• The use of a multi-level transformation model in order to allow sufficient time for the learners to enter into the learning scenario	

• Awareness and support of the capacity for teamwork and readiness for communication of the learners: virtual communication ability and readiness / online capacity for teamwork	
Media support	
• The aim of virtual communication is clearly defined.	
• The teachers understand about the differences in communication opportunities and are able to choose from several communication media.	
• The suitable medium of communication will be selected according to the aims of a learning activity and of the communication opportunities of that medium.	
The quality of collaboration	
Social Presence	
The contributions to a a collaborative online-learning activity contain/show:	
• personal information	
• emotions and mood	
• the reception, reading and comprehension of a contribution	
• mutual aims, engagement, responsibility	
Cognitive Presence	
The contributions of a collaborative online-learning activity contain and show:	
• Factual knowledge, conceptual knowledge and theoretical knowledge	
• Printing and presentation of factual knowledge, conceptual knowledge and theoretical knowledge	
Teaching Presence	
The contributions of a collaborative online-learning activity further and guide cognitive and social processes through:	
• Identification of areas of agreement and disagreement	
• The finding of a consensus	
• The support of the learners by way of agreement	

• The creation of a learning environment	
• Prompt replies in discussions	
• An estimation of the effectiveness of a discussion process	
• The presentation of content and questions	
• A focussing of the discussion	
• A summary of the discussion	
• A confirmation of the understanding	
• The resolution of misunderstandings	
• The contribution of knowledge from a variety of sources	
• The answers to technical queries	
E-learning content	
Immediacy and authenticity	
• The content is up to date.	
• The content is factually correct.	
• The content is authentic (the learning content is related to reality).	
Meta data	
• There are meta data for the description of the content as well as the learning objects (e.g. information with respect to the content, the learning target, duration of a learning unit etc.).	
Support for learning	
• Measures are in place for the support and furthering of learning (possibilites for individualisation and adaptation).	
• The content is available in several media.	
Additional value of the e-learning content	
• for the use of multi-medial materials (simulation, interactive exercises, self-testing) is the additional value assured.	
Representation	
• The representation of the content is adjusted to the teaching method.	
• The compatibility of content of the different learning units has been made clear through linkage.	

3 Quality criteria for training courses

3.1 Training courses

3.1.1 Models of e-learning

As already mentioned, a healthy mixture of e-learning and face to face phases is recommended. For this reason, a model is recommended in which e-learning and face to face learning phases alternate , whereby the actual self-learning of the learners should be limited to a maximum of a third of the total volume. Another third should either be arranged for the supervision by tutors and/or collaborative learning activities, the remaining third should be reserved for regular frontal teaching. Frontal teaching serves here so to speak as the anchor point of the entire e-learning. A sensible mixture is derived from didactic considerations and one could use face to face phases at the beginning of the e-learning for the teaching of basic technical know-how, while e-learning can be used for working through possible problems, for setting priorities and obviously for conveying attitudes and positions of learners and, finally, for working through and evaluation.

- 1/3 independent learning
- 1/3 supervised/collaborative learning
- 1/3 Learning when the teacher is present

3.1.2 Conception of e-learning phases

One of the major criticisms of e-learning is the lack of social contact. This is another reason why e-learning and face to face phases should complement each other. Another possibility is the setting up of virtual learning groups. That way groups can be gathered together in e-mail groups. Which in sequence receive relevant instructions. This does not only increase the quality of the orders but also reduces the amount of supervision because most uncertainties are resolved by the group itself.

3.1.3 Online and offline- supervision

The supervision of the learners by the supervisor is one of the most important tasks of the online-learning phases. Many learners get frustrated in an e-learning course, because they already falter when it comes to simple problems. This can be a forgotten password or a content which is not entirely right. The task of the tutors is to recognize and solve problems as fast as possible. A collection of problems and solutions on the learning platform in the form of faq's can on the one hand help the tutors to reduce the amount of supervision and on the other hand it can offer the learners the possibility of quickly arriving

at a solution. For the supervision of synchronous (chat, telephone) and asynchronous ways of communication (e-mail, forums, wiki-web) are available.

3.1.3.1 Asynchronous means of communication

E-mail: e-mail (electronic mail) is the classic and most frequently used asynchronous tool. It enables the tutors and learners to communicate on a 'personal' level. It also offers the chance to work with mailing lists, inside which communication can also take place. As most learners are already familiar with this tool, it provides a good chance to form the beginning of an e-learning teaching event. The inhibition threshold for online-learning can thus be lowered by quite a bit.

Forums: A discussion forum can be compared to a notice board. All can present their news in special categories visible for everybody else. Everybody who reads the news can react to it- ask questions, make comments etc. As the discussions, questions, answers, etc. are made in written form, the forum represents a detailed overview of a given topic. The work in a forum enables a communication which is independent of time and place, a provision of teaching and learning material, a detailed documentation of the contributions and a flow of information to all learners.

Wiki-web: is short for 'wikiwikiweb' or 'wiki wiki', it is Hawaiian for 'quickly'. A wiki-web consists like other websites of linked HTML-pages. The special thing about these is, however, that they cannot only be read but can also have personal information added to them without html-knowledge. That means that every person who visits a wiki-website can also alter it without a log in with a password. The fact that the users of wiki-webs are at liberty to change any given content or even erase it, makes a lot of internet users wonder whether this principle actually works. But practice explicitly confirms the validity of this concept. Wiki-webs are especially useful in the context of e-learning teaching events, in order to produce texts jointly and work on them.

Weblog: a weblog, often simply called a blog, is a website, which periodically contains new entries. New entries are listed at the top, older ones follow in a reverse chronological order. Weblogs are comparable to forums but rather reflect the personal character of the blogger. Most weblogs have the function of a commentary, which enables the readers to comment on an entry and thus to discuss matters with the authors or with other readers.Just as in a forum, when using a wiki-web no log in and password are necessary in order to make a comment.

3.1.3.2 Synchronous means of communication

Chat: this communication tool enables the learners and the supervisors to communicate simultaneously in writing.With this tool one tries to create some face to face atmosphere in an online-teaching event. As for an aural conversation with several learners it is even more important during a chat to make some rules for this sort of communication. These rules should be given to the learners in writing at the beginning. The chat is mostly suitable for the clearing up of organisational questions (the fixing of an appointment, the finding of a topic, brainstorming etc.).

Telephone: This generally well known communication tool plays rather a subordinate role in e-learning.

3.1.3.3 Evaluation and feedback of the exercises and texts

The evaluation of the e-learning selection is another important task for the tutors. This applies mainly to the control of the exercises. The amount of time spent on the learning platform is not necessarily an indication of learning, because most learners print out the contents anyway. But control of the exercises and feedback of the results to the learners are absolutely necessary. An automatic evaluation of the exercises by way of the learning platform simplifies the work of the tutors greatly. An evaluation of solved case studies, for example, tends to remain with the tutors. Mostly the results of the working over of the exercises are evaluated and indicated statistically.

3.1.3.4 Feedback to the learners

Motivating and speedy feedback is taken for granted by the learners. For the supervisors this turns out to be rather difficult, especially when there is a fairly large number of learners taking part in an e-learning teaching event. Complementarily, or alternatively, the opportunities for 'peer-assessment' can be made. Thus a furthering of the collaborative learning activities is put in place, whereby the learners mutually comment on their contributions and so improve them in stages. Finally, the contributions are evaluated by the supervisors. Eminently suitable for this are the so called wiki-webs and forums

3.2 Training of the users

The training of the users will be taking place in the first unit in a blended-learning scenario.

3.2.1 Handling of platforms

.To start with the prerequisites for the system like computer performance, software and browser prerequisites as well as the bandwidth needed for access to the internet should be sorted out. The content should also be available in an offline-version, if the computer of the learners does not fulfill the bandwidth prerequisites. After that, comes training with respect to access (authentification) and a general handling of the learning platform. If different types of course are offered, it is important to adhere to a uniform design to enable the learners to recognize the individual courses.

3.2.2 Support

The major advantage of e-learning is its independence of place and time. It follows therefore that learners are using the learning platform also outside regular study times in order to gain knowledge.That means that the learning platform has to be accessible 24/7 in order to avoid frustration on the part of the users. Should there be a real problem with the platform, there should be a notice posted, for example on the home page of the institution. Also problems like forgotten passwords or questions about use should be answered as soon as possible. For this reason the learners should be given fixed reaction times (e.g. inside 18 hours) and these should be adhered to. Inside the organisation there should be a written support procedure laid down. It should be obvious what the reaction will be in the case of, for example, a forgotten password. Several people should be responsible for support.

3.2.3 Rules of conduct

As the communication in e-learning takes place electronically it is suggested that, at the beginning of a course, one meets in real life (IRL). The communication runs rather more smoothly after that. An agreement about whether to address one another formally or informally overcomes another hurdle of communication. It has also been of advantage to have added a photo to the visiting cards of the learners as one remembers a photo more quickly than an e-mail address. It is also helpful if one defines the time periods in which the learners can count on feedback from the supervisors. A period of between 24 and 48 hours has proved sensible. Equally it can be sensible to allow for a window of time, during which the tutor is certain to be online (e.g. Wednesdays between 18.00 and 20.00). During this time the learners can count on a prompt and quick reply to their query. In the first face to face teaching event there should also be a discussion about the mutual expectations concerning the e-learning course.

3.3 Checklist[3]

Didactic concepts and methods	Check
Meta data	
• Necessary meta data according to content edict	
• AICC, SCORM	
Training of tutors	
Blended learning	
• A sensible combination of online and face to face teaching elements in learning opportunites	
Models of e-learning	
• Models in which face to face and e-learning phases alternate	
• 1/3 independent learning, 1/3 supervised as well as collaborative learning,	
• 1/3 Face to face learning	
Conception of the e-learning phase(s)	
• The formation of virtual learning groups	
• The furthering of social contacts	
Online and off-line supervision	
• Asynchronuous means of communication (e-mail, forums, wiki-web, web-logs, …)	
• Synchronuous means of communication (chat, telephone, …)	
Evaluation and feedback of the exercises and texts	
• Length of stay	
• Control of the exercises	
• Automatic evaluation through LMS	
Feedback to the learners	
• Motivating and speedy feedback	

[3] vgl.: Kristöfl, R., Sandtner, H., Jandl, M. (2006): Qualitätskriterien für E-Learning, Ein Leitfaden für Lehrer/innen, Lehrende und Content-Ersteller/innen, Wien, Page 61ff

• Peer- assessment	
Training of the users	
The handling of platforms	
Support	
Generalities- Rules of conduct	

Solingen, January 20th 2010
Astrid Geldien
gbb Gesellschaft berufliche Bildung
Goerdelerstr. 47, D-42651 Solingen

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