E-Learning:
Didactical Recommendations and Quality Assurance
An Overview

University of Copenhagen, Faculty of Life Sciences (LIFE)
Swedish University of Agricultural Sciences (SLU)
Czech University of Life Sciences Prague (CULS)
University of Hohenheim (UHOH)
Warsaw University of Life Sciences (WULS - SGGW)
Wageningen University and Research Centre (WUR)
University of Natural Resources and Applied Life Sciences, Vienna (BOKU)
Euroleague FOR LIFE SCIENCES

Euroleague for Life Sciences
Quality Assurance Support Team & eLearning Support Team

Coordination and Project Management
Dr. Ralph Reimann, University of Natural Resources and Life Sciences, Vienna
Mag. Yvonne Prinzellner, University of Natural Resources and Life Sciences, Vienna
DI Claus Rainer Michalek, University of Natural Resources and Life Sciences, Vienna
Prof. Dr. Ulrich Haas, University of Hohenheim
Mag. Thomas Guggenberger, University of Natural Resources and Life Sciences, Vienna

Ass. Prof. Dr. Mogens Andersen, University of Copenhagen
Pauline Mieleszko, Warsaw University of Life Sciences & ELSA
Prof. Dr. Milan Slavik, Czech University of Life Sciences Prague
Veronika Pfaffenberger, University of Hohenheim & ELSA
Prof. Dr. Edward Pierzgalski, Warsaw University of Life Sciences
Dr. Jan Steen, Wageningen University and Research Centre

Helen Alstergren, Swedish University of Agricultural Sciences
doc. Ing. Zdenek Havlícek, CSc., Czech University of Life Sciences Prague
Henrik Kaas, University of Copenhagen, Faculty of Life Sciences
DI Dóra Kertész, University of Natural Resources and Life Sciences, Vienna
Dipl. oec. Ingo Kneller, University of Hohenheim
dr inż. Mirosław Woźniakowski, Warsaw University of Life Sciences

Cover design
DI Claus Rainer Michalek, University of Natural Resources and Life Sciences, Vienna
Dr. Ralph Reimann, University of Natural Resources and Life Sciences, Vienna

TABLE OF CONTENT

Dear colleagues,

I am pleased to provide you the document “E-Learning: Didactical Recommendations and Quality Assurance. An Overview” which responds to the growing importance and spreading of e-learning in Higher Education in Europe. This document is particularly addressed to the needs of the Euroleague of Life Science which delivers a great number of summer schools and joint Master programmes which are to a considerable degree supported by e-learning. Building on the experiences of ELLS students and teachers, this document offers a practicable tool for ELLS teachers who intend to deliver an e-learning course.

In particular, this document contains characteristics of good e-learning which consider the e-learning environment, teachers´ competencies and didactics of e-learning. It also deals with ways of assessing and the evaluation of e-learning courses. Furthermore, it contains a number of examples of good practice from the member institutions of the Euro League of Life Sciences and an outlook on future trends in e-learning.

The document follows a very practical approach; it summarizes and visualizes background information, lists a few crucial quotations from literature, includes the findings of the surveys which had been carried out within ELLS and brings a great number of recommendations for teachers. I recommend this document to be widely used within ELLS and I hope that it proves to become a very useful document for our teachers and that it helps to further increase the quality of our courses and programmes.

I would like to appreciate the professional work which was carried out by the e-Learning Team and the Quality Assurance Team of ELLS and I would like to thank the teachers who contributed to this document.

Yours sincerely,

Prof. Dr. Niels Elers Koch

Chair of the ELLS Board, Copenhagen, April 2012

1 Introduction

1.1 Definition of e-learning

E-learning and many forms of ICT-supported learning respectively are of increasing relevance. The acceptance of e-learning as a useful concept in higher education has grown considerably all over European educational institutions and has also achieved specific importance within the Euroleague of Life Sciences. Most probably, the need for high quality e-learning will become even greater in the future.

> *"Thus, the question that we ask is not whether we should support the idea of e-Learning, but rather how e-Learning can best be integrated in the university setting."* (Davidson & Waddington, 2010, p. 2)

But what is e-learning? It is very difficult to define what e-learning actually is. There are many terms for e-learning like …

- computer-based training;
- online learning;
- web-based learning;
- distance learning;
- and many more.

Many definitions simply focus on the technical side of e-learning. In a broader sense e-learning can be defined as learning as long as someone is trying to teach someone else via electronic means. Thus, a very short definition is:

E-learning refers to the delivery of training, education and collaboration using various *electronic* media but predominantly the internet.

(following to: Usoro & Abid, 2008)

A special and very common form of e-learning is blended learning which combines two different kinds of learning:

Blended learning (also called hybrid learning) is the term used to describe learning or training events or activities where e-learning, in its various forms, is combined with more traditional forms of training such as "class room" training.
(following to: Stockley, 2011)

Blended learning, for example, can result in a class having three face-to-face sessions and five online sessions or in a course having a preparatory week via an e-learning platform and the main part of the course is then delivered in class face-to-face.

1.2 Idea and aim of the overview

The concept of e-learning comprises two main elements, an educational and a technical. Effectiveness and success of e-learning (i.e. the achievement of intended learning outcomes by students) depend on technical issues as well as on didactical and pedagogical issues. In the overview at hand the focus is always on the didactical and pedagogical aspects.

Idea and aim of the overview is …

- to describe characteristics of good e-learning – specifically for the didactical/pedagogical area;
- to give examples of didactical/pedagogical suggestions for the use of e-learning in higher education;
- to provide instruments for the evaluation of e-learning;
- to hand over good practice examples
- to deliver future trends in e-learning.

1.3 Background research

In the context of collecting didactical support for the use of e-learning in higher education a little background research was done in order to get an impression about the student's and teacher's view on e-learning: What is important and should be considered when in a course e-learning is used? Therefore, online-surveys and interviews with ELLS-students and ELLS-teachers have been conducted. 49 ELLS-students (return rate 26.7%) and 18 ELLS-teachers (return rate 24.3%) have taken part in the online-survey (May-June 2011). The answers and comments were used to meet the requirements and ideas of students and teachers when developing the didactical recommendations.
According to the topics in the overview suitable results of the surveys will be presented in small figures.

2 Characteristics of good e-learning

This chapter is mainly about the didactical and pedagogical aspects of e-learning rather than focusing on the technical framework, as is usually done. Taking a closer look at the didactical and pedagogical aspects of e-learning three main factors can be identified. These factors are crucial for the quality of e-learning and, moreover, they are strongly intertwined. For a better understanding these areas are dealt with separately.

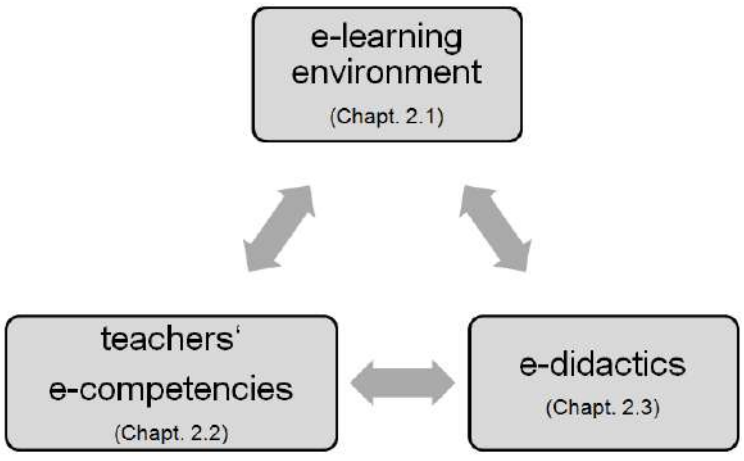


Figure 1: Basic factors determining the quality of e-learning courses.

2.1 E-learning environment

2.1.1 Usability of the e-learning environment

Usability is one of the major topics in the context of e-learning due to its strong effect on the motivation of learners: A poorly structured e-learning course makes students feel lost, confused, and frustrated.

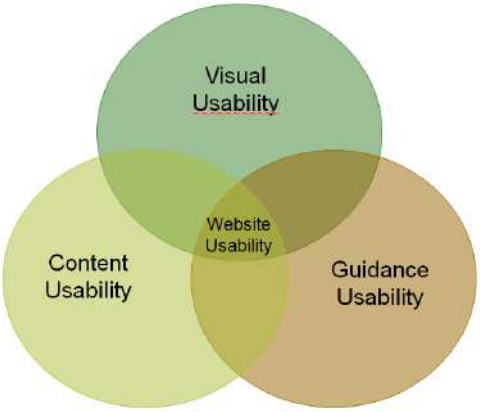


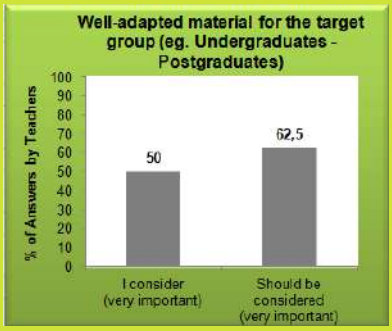
Figure 2: Usability-aspects of an e-learning course (Schmeißer & Sauer, 2003).

The following aspects should be considered when planning and structuring an e-learning course.

Visual usability – recommendations

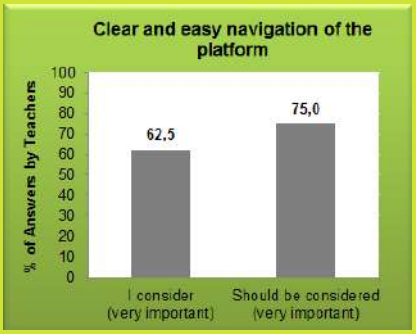
- ✓ The structure has to remain simple to keep the barrier of participating online for the students as low as possible.
- ✓ Clear demarcation of „units“ of learning material and of activities.
- ✓ The “units” must be easy to spot for the students, not hidden in a folder without labels.
- ✓ An overview of the units of the course should be visualized (e. g., listed in a table or with the help of a figure).

Content usability – recommendations



- ✓ Select a suitable amount of information and learning material beforehand and do not overwhelm the students with information.
- ✓ Try to keep the content up-to-date.
- ✓ Consider the target group when picking learning material, e. g. undergraduates have different needs compared to those of postgraduates.
- ✓ Make the most basic and useful information of the course accessible for the students on the platform like contact persons, deadlines etc.

Guidance usability – recommendations



- ✓ Make sure that the navigation on the platform remains easy and clear (label files, folders and forums).
- ✓ Make sure that downloadable files will be opened in a “new window” and that the e-learning course remains on the screen.
- ✓ Links posted on the platform always must be counterchecked if they are really working.
- ✓ Use the integrated search and help function to make the navigation easier for the students.

2.1.2 Terminology: LMS – PLE

In this chapter two terms in the context of e-learning will be explained to foster a better understanding of different approaches towards e-learning and its possibilities: Learning Management System (LMS) and Personal Learning Environment (PLE).

A Learning Management System (LMS) can be characterized as follows:

A software application or web-based technology used to plan, implement, and assess a specific learning process.

A LMS …

- provides an instructor with a multitude of possibilities on how to construct and to design a course;
- defines the possibilities and limitations for the course design, which is managed by the teacher;
- is a "closed system".

Examples for common LMSs are Moodle, WebCT, Blackboard Vista, it's learning, Fronter, Ilias.

A Personal Learning Environment (PLE) can be characterized as follows:

The concept of a PLE is as an emerging technology that is likely to have a large impact on teaching and learning (Dabbagh & Kitsantas, 2012).

A PLE is …

- generally under the user's control
- environment can be personally adapted
- concerned with the coordination of the connections made by the learner with units and agents across a wide range of systems
- envisaged primarily as an open system (see van Harmelen, 2006).

Common tools belonging to a PLE are production tools (allowing learners to develop their own content), storage tools (allowing learners to store their own content), and identity management (allowing learners to manage personal information, e. g. personal images, description of own personality).

When students strongly communicate and collaborate with others (share information, discuss content and topics; work together on projects) the term "**Social Learning Environment**" (SLE) is widely used. Famous elements of a SLE are Facebook, Ning, YouTube, Flickr, Slideshare, EtherPad, Wordpress, Nesgator, Twitter (see Kadle, 2010).

2.2 Teachers' e-competencies

The implementation of e-learning demands certain competencies. One of them is that teachers acquire the know-how to use and work with new media in order to design, carry out and evaluate innovative approaches to teaching and learning in the 21st century (Kerres, Euler, Seufert, Hasanbegovic & Voss, 2005).

There is not one way to organize and design e-learning settings. A linear instruction of how to set up an e-learning environment cannot be given due to the very individual needs of teachers and students as well as the learning objectives of the diverse courses (Niegemann et al., 2008, p. 153)

> *„The challenge is to use the technical possibilities in such a way that there is an added value for teaching."*
>
> Kerres et al. (2005, p. 16)

Therefore e-teaching competence implies an extension to the traditional teaching-competence, especially considering the growing use of technical devices while teaching in higher education settings. But today's teachers and instructors also have to gain the know-how to implement new media in their teaching in order to promote an added value not only for themselves but mainly for their students. The challenge can often start by learning to handle a new e-learning environment every few years. Another important element for teachers is to enrich their traditional teaching skills by adding some e-teaching competence and thus expanding their didactical knowledge and increasing the quality of their teaching.

> *„A teacher who participated in an e-learning platform training does not dispose of e-teaching competence."*
>
> Kerres et al. (2005, p. 16)

2.2.1 Nineteen basic teacher competencies

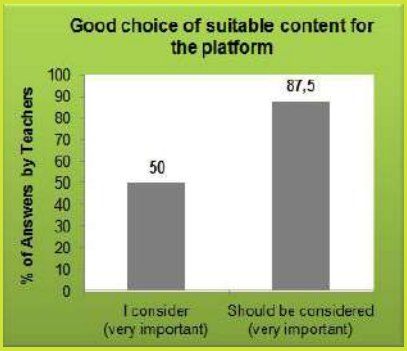
The competencies listed below should all be part of a teacher's e-competencies. Therefore they can also be considered as recommendations for teachers who are planning to use e-elements in their courses. According to Kerres et al. (2005) these competencies can be divided into three main components:

Figure 3: Main components of a teacher's e-learning competence.

Each of these components comprises the following e-competencies:

Professional expertise – information and recommendations

- ✓ Specification of learning goals.
- ✓ Suitable reduction of the learning material: choice of central and suitable content.
- ✓ Preparing content for online utilization.
- ✓ Analyse the target group (e. g. amount of previous knowledge, engagement of the participants).
- ✓ Knowledge of the applications and technical potential of the e-learning environment
- ✓ Knowledge of copyright (see chapter 2.2.2.6).



Social competence – information and recommendations

- ✓ Define and master rules for communicating online („netiquette").
- ✓ Give clear and rather short explanations and instructions in online communication.
- ✓ Ensuring activity of students.
- ✓ Motivating students (see chapter 2.2.2.1).
- ✓ Monitoring the online activities of students.
- ✓ Answering questions and discussing online (see chapter 2.2.2.5).
- ✓ Providing feedback online (see chapter 2.2.2.2).
- ✓ Diversity and the handling of it in the online setting (see chapter 2.2.2.3).

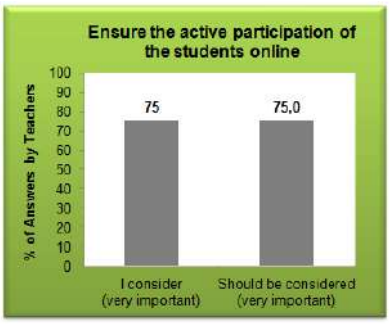
Self competence – information and recommendations

- ✓ The teacher becomes the coach/instructor (depending on the design and on the requirements of the given course): supervision, support, tutoring and stimulation.
- ✓ Ability and willingness to deal with criticism and to adapt the (online) courses accordingly.
- ✓ Structured organisation of (online) activities (is a necessity in an online setting): set priorities, consider the time budget, integrate online elements into the course.
- ✓ Willingness to explore the didactical potential and technical options of the given online environment.
- ✓ Interpretation of the additional transparency of courses as opportunity instead of setting the focus on the loss of autonomy due to the collaboration with support groups.

2.2.2 Some central competencies

2.2.2.1 Motivating students

E-learning without activity is no learning! There are some general ideas on how a teacher can motivate students and get them to actively engage in a course. The first part of this issue will give an overview on some strategies on how to motivate students, following up with some hands-on advice for teachers how to apply these principles in class and online.



Activating/motivating students – recommendations

(Niegemann, Domagk, Hessel, Hein, Hupfer & Zobel, 2008; Zakrajsek, 2005)

- ✓ Attract students' attention: This can be achieved by including interesting cliffhangers or current issues regarding a topic in the online classes (This can be done by informing the students via newspaper articles, pictures or short videos etc.)

- ✓ Awake students´ interest and motivation: This can be achieved by either letting students identify themselves with another person or slip into a different role.
- ✓ Let the learning outcomes be known: This can be done either by naming them directly or at least describing them. Not naming them is a rather manipulative approach.
- ✓ Overview of the learning matter: It is not a necessity but letting the students know what the seminar/lecture will be about and giving tem hints on the main milestones is really helpful.
- ✓ Activate previous knowledge: Let the students know what their previous attitude towards a certain topic was.
- ✓ Deliver information and foster understanding: Make them aware of their approaches to topics by using role-games, conviction, discussions or simulations.
- ✓ Focus the students' attention: This can be achieved by providing them with examples and models.
- ✓ Fostering/Applying learning strategies: Use mnemonics or slogans to enable students to boost the cognitive aspects of attitudes.
- ✓ Exercises: Practice cognitive and affective behavioural patterns to let students know how to behave or how "something feels".
- ✓ Feedback: Set a focus on the consequences of certain actions. Try to link the learning matter to resulting behaviour.
- ✓ Retrospection and summary: Make the appropriate behaviour clear and transparent to the students. Let them know the goal and aim of the learning matter.
- ✓ Foster transfer knowledge: Discuss basic applications of the learning matter with the students. Use role games and simulations.
- ✓ Examination: If possible try to use role-games and simulations to find out, if the learning matter can also be applied by the students.
- ✓ Teachers post a "welcome letter" at the beginning of course.
- ✓ Learners are encouraged early on to find out about each other (hobbies, goals, interests).
- ✓ Learners are encouraged to post their photograph (if they want to - some prefer to remain anonymous).
- ✓ Teachers check in regularly, at pre-assigned times (and never fail to do so).
- ✓ Navigation must be kept simple. Not everyone is technically minded.

- ✓ To make the course relevant, learners are encouraged to take turns in being responsible for leading a discussion or task.
- ✓ Technical breakdowns will always be part of working online. It is essential, therefore, that the teacher has a contact telephone number or email address for each learner.
- ✓ Demonstrate to the students the importance of the subject matter covered in the course.
- ✓ Provide a separate document concerning the course policies (information on attendance/lateness, class participation, missed exams or assignments, lab safety/health, academic dishonesty, and grading)
- ✓ Keep the students updated on available support services.
- ✓ Make students accountable for their work and display it for external audiences (This can be achieved by working on real projects. Sometimes even assignments like feedback each other on papers in a blind review process can help to motivate the students to give it their all. The teacher simply has to make the papers anonymous and post them in a forum. Every paper gets a number. The same applies to the reviewers. The only one who will know who reviewed whom will be the teacher. To make sure that the posts stay anonymous use an „anonymous forum“.)
- ✓ Have them contract for grades (e. g.: Let the students choose the amount of points they can receive for an assignment or decide in class which consequences it will have, if they do not hand in their papers (like extra work). It is pretty clear that this method cannot be applied when 200 students are attending a lecture. But these contracts can have a positive effect on the student. They will feel more responsible for their own grades. Another way to achieve this effect is by making the grading as transparent as possible. Some instructors (especially in the online environment) have started using points as indicators to enable students to check up on their „grading-status“ any time. It's best to add a document with the points which can be achieved, to the „grading policies“. It would be best to create a folder online (name it „grading policies“) and import all files regarding the policies into this folder.)

2.2.2.2 Feedback

Feedback is a necessary method for learners to improve their abilities and knowledge on a steady basis. Without feedback from a teacher, instructor or coach who is bound to be an “expert” in his or her field, learners do not know where they stand, regarding their personal abilities. When done right it can be a great motivation and a push for the learner’s self-esteem. When done wrong it can have the exactly opposite effect.

Everyone who has ever been in the position of teaching another person knows that giving feedback is way harder than it might seem in the first instant. Everyone who has ever had to learn from someone who was not able to deliver feedback properly knows what a tough lesson this can result in.

Especially in an online setting where some exercises might be given, “handed in” and graded online, giving feedback is a crucial matter. A grade might let students know about their achievements (often only in comparison with their colleagues) but it will never be able to deliver them hints for improvement, reasons for the grade or what they have done perfectly right. This is why good feedback is more helpful for students.

Feedback – information and recommendations

Good feedback will let students know …

- what was “right”;
- what was “wrong”;
- how to improve.

Feedback is more effective if it is more explicit. It is more functional if it is directly linked to observable behaviour. There are several criteria for good feedback (Nelissen, 1978). Feedback is effective when:

- ✓ It is linked to observed and demonstrable behaviour and not to the person.
- ✓ It is descriptive – it is not an interpretation or a judgment about the behaviour. The point is to describe what you observed, and how you perceive this and what kind of reaction it evoked in you. Remember, this description is always subjective. Try to avoid judging.
- ✓ It is specific and not general, aimed at concrete, specific and clearly defined behaviour.
- ✓ It is provided immediately after the behaviour.
- ✓ It helps the receiver to do something with it. Giving advice, which is not workable, is not helping.
- ✓ It is given on the right moment (when the receiver is receptive for it).
- ✓ It is formulated in such a way, that it is inviting to the receiver to react on the feedback.

To make feedback effective a few rules are given:

- ✓ Take time to think about the message (at first, summarize all aspects of the behaviour/situation and then make a selection of the really important aspects)
- ✓ Give feedback in 'I-messages'. "I think that...". Avoid the use of descriptions which start with "You...", such remarks can easily be perceived as accusing or judgmental which makes the feedback loose its purpose.
- ✓ Limit the feedback to what has happened in the contact with this person.
- ✓ Describe your own feeling as an extra to the feedback.
- ✓ Describe the effect of the behaviour on you.

2.2.2.3 Diversity management

Diversity has become more important in the university context due to the increasing globalization and internationalization. E-learning enables both, students and teachers, to get in touch and collaborate with colleagues all over the globe. When designing an online course it is therefore very important to consider the different backgrounds, ambitions and attitudes of students. The "diversity wheel" depicts all those different variables a teacher could be confronted with.

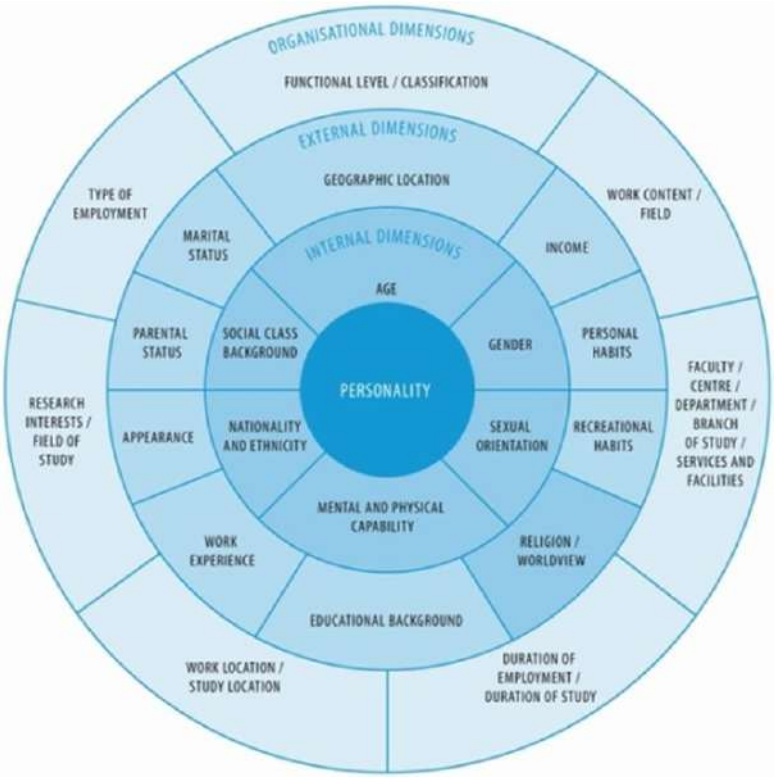


Figure 4: The Diversity Wheel (Gardenswartz & Rowe, 2002).

An e-learning course within a network like ELLS should take care and reflect especially on the diversity factors nationality, educational background, and research interests.

Diversity – recommendations (Delgado, 2008)

- ✓ Devote time in an intensive introduction course to familiarize students with the teaching methods, the expected approach by the students to learning, and the assessment methods.
- ✓ Develop active learning techniques to encourage participation and inclusion.
- ✓ Support students for whom it transpires that they do not have adequate prerequisite knowledge in certain subjects
- ✓ Introduce case studies or examples from the students' countries, where possible. This is crucial to make students feel confident about the applicability of the acquired knowledge in their home country reality.
- ✓ Introduce comparative approaches to give the students the opportunity to contribute from their own experience.
- ✓ Help with the development of some necessary skills which are inadequate, for example the topics could include self-learning, information seek tools, and the use of scientific data bases, e. g. through individual counselling or online workshops.

2.2.2.4 E-moderation

For e-learning to be successful participants need to be supported through a structured developmental process (Salmon, 2002). This requires good e-moderation by the teacher. A famous framework for e-moderation is the five-stage model by Salmon (see e. g. 2002):

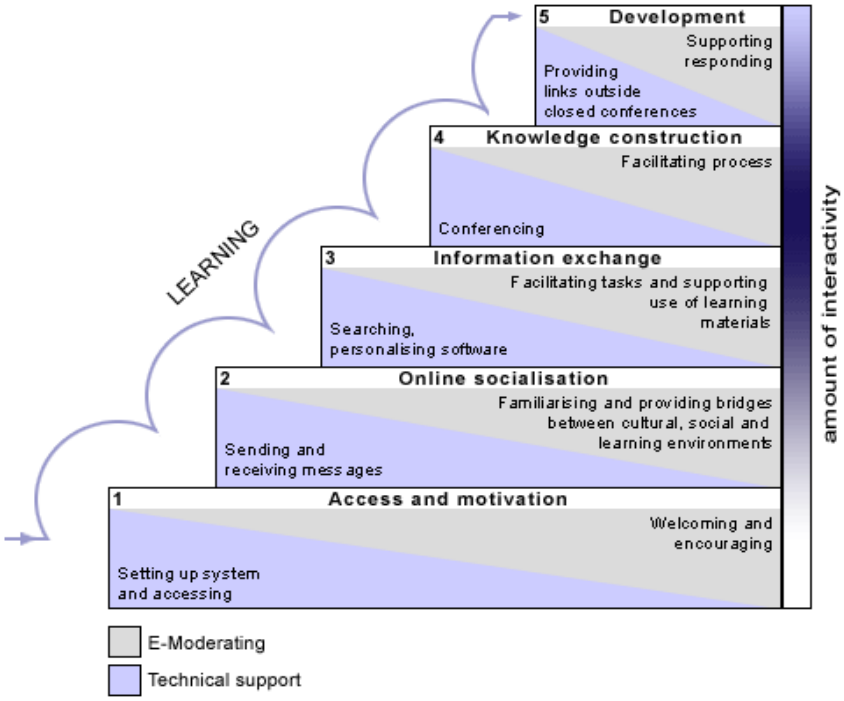


Figure 5: Five Stage Model of Teaching and Learning online (acc. to Salmon, 2002)

The e-moderator has to be able to understand the different stages. Each stage requires different kinds of e-moderation.

Stage 1 Access & Motivation	The system being used is set up and the students get to know the platform. The e-moderator should welcome the participants and encourage them to actively engage online.
Stage 2 Socialisation	The students will start to communicate (with each other) via the platform. At this point the e-moderator should support the group's communication if necessary and provide the infrastructure needed (e. g. forums, bulletin boards).
Stage 3 Information Exchange	Sounds the bell for personalizing the platform in use by the users. This is the ideal time to pass on the first online-tasks and to structure the platform accordingly.
Stage 4 Knowledge Construction	The students start to communicate and collaborate with each other. The e-moderators task at this point is simply to keep the communication flowing and to regulate it where it's needed.
Stage 5 Development	Students start to work on personal learning goals and fulfil assignments given by the instructor.

Strongly connected with e-moderation is the concept "e-tivity" – and each of the aforementioned stages requires e-tivities of a different nature. E-tivity is the word Salmon uses for the "frameworks for enhancing active and participative e-learning by individuals or groups" (Salmon, 2002, p. 3). Or, in other words, e-tivities are assignments for active and interactive online learning.

Key features of e-tivities include (Salmon, 2002) …

- a small piece of information, stimulus or challenge (the "spark");
- online activity, which includes individual students posting a contribution;
- an interactive or participative element, such as responding to the postings of others;
- summary, feedback or critique from an e-moderator (the "plenary");
- all the instructions to take part are available in one online message (the "invitation").

E-tivity – recommendations (according to Salmon, 2006)

- ✓ Decide in advance of the students logging on what the students are expected to do and what the e-moderator will do.
- ✓ Ensure the students are clear about the intended objectives for an e-tivity. Start with the end in mind.
- ✓ Ensure that the planned assessment meets the purpose(s) of the e-tivity – look for alignment with tasks. Attempts to forcefully create participation through direct assessment are rarely successful.
- ✓ Build in motivation as part of the process of undertaking the e-tivity itself and not as something separate from it. Motivation occurs because of the learning activities. Avoid trying to motivate people to simply log-on, and „discuss", instead provide an e-tivity that makes taking part worthwhile.
- ✓ Create an experience that is complete and worthwhile in itself. This includes setting short-term goals but ensuring there is a satisfying process and „flow" of actions. In practice, e-moderators need to exercise judgement about when to go with the flow and when to guide students towards expected outcomes.
- ✓ Be highly sensitive to timing and pacing. Divide the e-tivity up into bite sized chunks – no more than two or three weeks work for a complete e-tivity.
- ✓ If more than one e-tivity is offered at a time, build them together in a coherent way

to create a 'programme'. Use the five-stage model.

- ✓ Ensure that the e-tivities are in some way focused on sharing, shaping, elaborating or deepening understanding.
- ✓ Ensure that students need to work together in some way to achieve the learning outcomes. If the way to make working together worthwhile cannot be seen, maybe using e-tivities is not the best approach?
- ✓ Be generous in allocating e-moderator time, especially if the e-tivity is geared towards stages 1-3.
- ✓ Be ready, be prepared, and don't be surprised at serendipitous events.
- ✓ Aim to provide just one instructional message, which contains everything needed to take part. Each instructional message e-tivity should include**:**
  - The purpose of the e-tivity (why the students are doing it). If the e-tivitiy is assessed, indicate what might indicate success and how they can achieve it.
  - What students should do and how they can go about doing it.
  - How long it should or could take. An idea of when the e-tivity starts and when it should finish.
  - How the students should work together.

As long as a teacher knows what goal he/she seeks to fulfil with the task at hand it will be worth it to try it out. A teacher should remember that if the e-tivity experience fails this can have a whole set of reasons. In this case it is never a bad idea to demand feedback directly from students. A teacher should not be afraid to be creative!

2.2.2.5 The proactive teacher

E-learning is teaching, either as pure e-learning or as part/element of a course, e. g. in a blended-learning setting. Teaching means to be in contact with the students!

Teaching in an e-learning-setting implies for the teacher…

- to be visible and active on the e-learning-platform (regularly; perhaps at pre-assigned times – and then never fail to do so);
- to prevent the students from feeling "left alone" on the platform;
- to let the participants of the course know, how they can contact the teacher;

- to not just react on posts of the students but to be aware and active on the platform in regards to the role as a moderator (see below “Communicating online”);
- to monitor the students´ activities online.

Communicating online – recommendation

- ✓ Especially in an online environment it is very important to use a short and precise way to describe what the students have to do.
- ✓ Do not state ambiguous instructions or messages – the effort afterwards to explain the instruction/message is much more than a few minutes preliminary thinking about a clear and well-defined posting.
- ✓ If something is posted on the platform (either in a forum or as an information on a bulletin board) it should always be in reference to something (maybe something that already has been posted before).
- ✓ In a forum: Start a new thread if a new topic arises. This will make it clear for everyone that there is some new information retrievable.

2.2.2.6 Copyright

Copyright is a topic all scientists are concerned with. And it does not stop there. Teachers/instructors working with e-learning platforms to provide their students with content are also affected. As with any other laws and provisions they differ from country to country. If it is not sure what is allowed to upload or make available to the students, consult an expert at the institution first. Most universities have an e-learning centre which is specialised on these inquiries, so do not hesitate to seek for advice first!

2.3 E-didactics

Generally, didactics means the way of teaching and learning. In this sense it also covers teaching and learning methods. Therefore, didactics obviously is an important issue also in the context of e-learning.

In this chapter there is information or/and advice on …

- learning paradigms;
- the basics on how to plan an e-learning course (what is important to consider?);
- how to plan an e-learning course regarding didactical aspects;
- how to motivate students.

2.3.1 Learning paradigms

A learning paradigm is a basic orientation that expresses how learning functions and takes place. Every educational method and e-learning setting is based explicitly or implicitly on a specific understanding of how human learning proceeds. Depending on the specific case in question, one or another theoretical approach will be serviceable (Schmitz, Zimmermann & Guttormsen Schär, 2009) – see Figure 6.

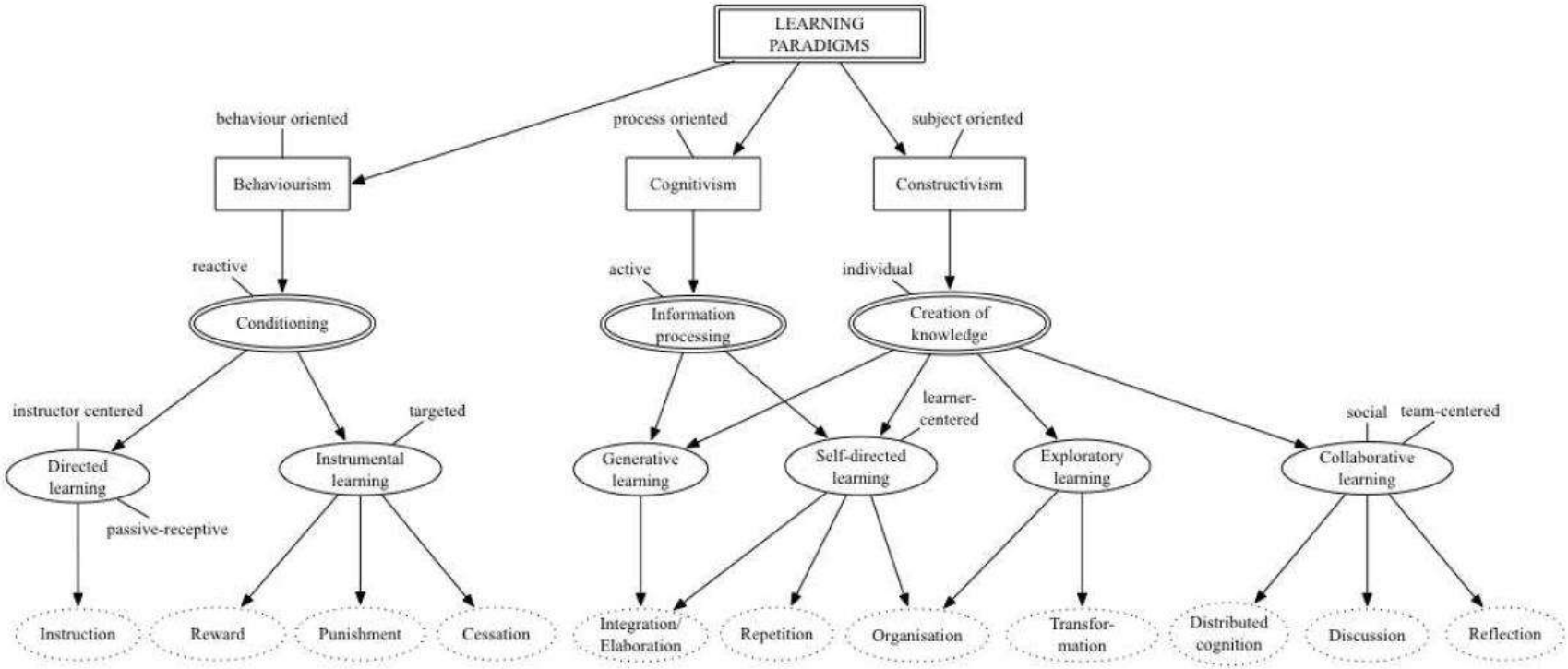


Figure 6: Visualization of the concept "learning paradigms" (Schmitz, Zimmermann & Guttormsen Schär, 2009, p. 505)

Currently, for e-learning the paradigm “constructivism” is deemed suitable. The basic idea is that learning is an active, constructive process. The learner is viewed as an active information constructor. Learning is very closely linked to experiences made. Every experience is subjective thus is learning. The learner constructs knowledge.

2.3.2 Basic planning of an e-learning course

As with every other course planned in his/her career so far, a teacher knows very well that there are several basic factors that one should be aware of, when trying to plan a course or lecture! In case of e-courses some more elements have to be added to the list which has to be taken into consideration:

Basic planning of an e-learning course – information and recommendations

What is it going to be? Before starting to plan the course, think about the curriculum first! What kind of students are participating in the course (undergraduates or postgraduates)? Is it an extracurricular course or one of the compulsory courses every student has to „go through“? These first steps are very important for further activities. Always pick the students up where they stand, this means acknowledging their previous experience (know the ones are supposed to teach.)

- ✓ Using a digital platform to support the lessons can give students more structure. Especially undergraduates and those new to the university will benefit from this service.

Which type of course is it? Will 20 or 200 students attend the course? Is it a block course or a course on a weekly basis? Before anything else, consider these elementary questions!

- ✓ Blended learning is ideal for block courses. It gives the teacher and the students the freedom to work on assignments with the support of face-to-face sessions. The streaming of lectures or narrated PowerPoints can help to keep the teacher and the students „on track“. Students can recapture the learning matters while the teacher can archive and adapt his speeches.

Which kind of resources? Think of the resources pre-existing for the courses: is there a support team for teaching (teaching assistants, tutors, etc.) and/or for the technical aspects (e. g. an e-learning centre)?

Integrating e-elements into a course at university might seem a lot of work at first sight and there is no denying it that the teacher will have to put a lot of effort into reshaping a course with e-learning elements. Once the planning is done, the adaption of follow-up courses with e-learning elements tends to be far less work and is actually more timesaving than to start a new.

2.3.3 Didactic principles of an e-learning course

An e-learning-course (or the e-learning element within a course) should follow a didactical concept. Such a concept consists of four basic components, which will be shortly described in the following chapters.

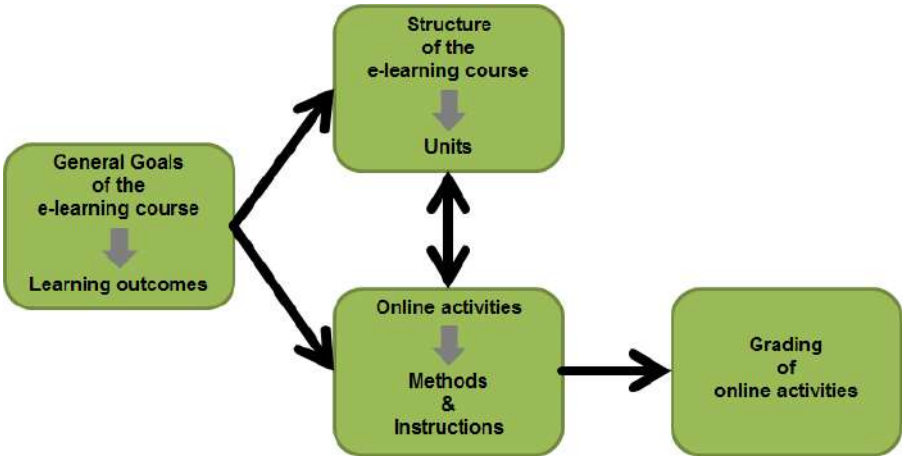


Figure 7: Basic didactical concept of an e-learning course.

2.3.3.1 General goals of the e-learning course

In every course in higher education the educational goals must be described in terms of „Learning Outcomes“. One of the many definitions of a learning outcome is:

> **Learning outcomes are statements of what a learner is expected to know, understand and/or be able to demonstrate after completion of a process of learning.**
>
> (ECTS Users' Guide, 2005)

Although learning outcomes are mostly used in curriculum development, they can be a very good tool to help planning the learning goals and sessions for the course and how

to target students, because of the need to be very precise when working with learning outcomes. The teacher does not just define WHAT he wants the students to learn but also HOW they can display their knowledge is especially important when trying to incorporate online-elements into teaching. E-learning applications have to be planned beforehand, the materials have to be collected, the learning goals have to be set.

Advantages of learning outcomes – information (Kennedy, Hyland & Ryan, 2007)

Learning outcomes …

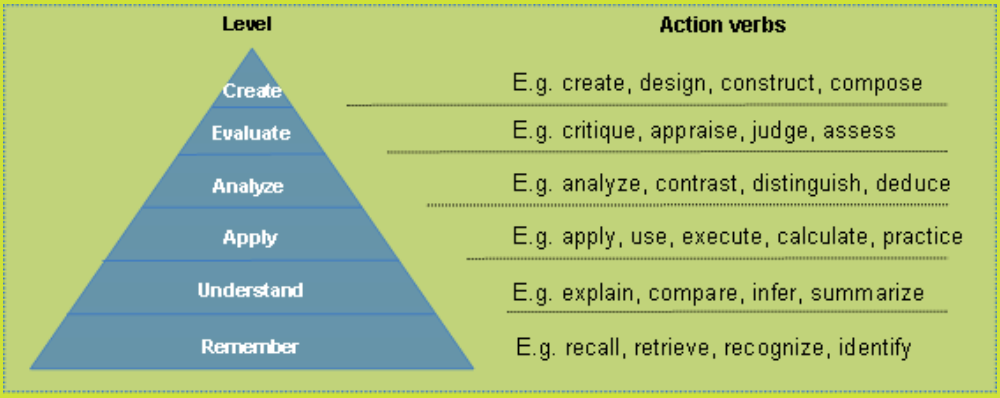
- help teachers to tell students more precisely what is expected of them;
- help students to learn more effectively: students know where they stand and the curriculum is made more open to them;
- help teachers to design their materials more effectively by acting as a template for them;
- make it clear what students can expect to gain from following a particular course or lecture;
- help teachers select the appropriate teaching strategy matched to the intended learning outcome, e. g. lecture, seminar, group work, tutorial, discussion, peer group presentation or laboratory class;
- help teachers to tell their colleagues more precisely what a particular activity is designed to achieve;
- assist in setting examinations based on the materials delivered;
- ensure that appropriate teaching and assessment strategies are employed.

Writing learning outcomes – recommendations (Kennedy, Hyland & Ryan, 2007)

- ✓ Begin each learning outcome with an action verb, followed by the object of the verb followed by a phrase that gives the context.
- ✓ Use only one verb per learning outcome.
- ✓ Avoid vague terms like know, understand, learn, be familiar with, be exposed to, be acquainted with, and be aware of. These terms are associated with teaching objectives rather than learning outcomes.
- ✓ Avoid complicated sentences. If necessary use more than one sentence to ensure

clarity.

- ✓ Ensure that the learning outcomes of each unit relate to the overall outcomes of the programme.
- ✓ The learning outcomes must be observable and measurable.
- ✓ Ensure that the learning outcomes are capable of being assessed.
- ✓ When writing learning outcomes, bear in mind the timescale within which the outcomes are to be achieved. There is always the danger that one can be over-ambitious when writing learning outcomes. Reflect the question if it is realistic to achieve the learning outcomes within the time and resources available.
- ✓ On writing the learning outcomes, bear in mind how these outcomes will be assessed, i.e. how knowledge can be obtained if the students have achieved these learning outcomes? If the learning outcomes are very broad, they may be difficult to assess effectively. If the learning outcomes are very narrow, the list of learning outcomes may be too long and detailed.
- ✓ Before finalizing the learning outcomes, colleagues and possibly former students should be asked if the learning outcomes make sense to them.
- ✓ When writing learning outcomes, for students beyond first year, try to avoid overloading the list with learning outcomes which focus on “Remember” and “Understand” (first two levels of Bloom’s taxonomy; see below). Try to challenge the students to use what they have learned by including some learning outcomes which are drawn from the higher categories (level “Apply”, “Analyse”, “Evaluate”, “Create”).



Example for Bloom's Taxonomy after Anderson et al. 2001 (after Steen 2009)

2.3.3.2 Structure of the e-learning course

Learning methods (activities) are very different and correspond to different learning paradigms. These are included between two extremes. The first sees a strict tool of administration aimed at complete control of the usage process of the courses. The other, on the contrary, assumes a complete freedom of content typologies offered, where the learner is free to “navigate” with no constraints, but is building his/her own path in relation to personal motivations and capacities (D’Angelo, 2007).

A course should contain a sequence of units with an advanced organizer presenting an overview of the course. To strike a balance between the aforementioned two paradigms each unit should be structured into different elements. As shown in Figure 8 the recommended unit comprises elements like content and activities. These elements are preset by the teacher in order to ensure an intended learning process of the students. Additionally, free content allows the learner to “deepen” the knowledge in a self-determined way. Therefore, each of the different units should contain (at least) basic unit information, content, activities, in-depth materials (sometimes called “deepings”), and self-assessments (exemplarily shown for unit 1 in Figure 8).

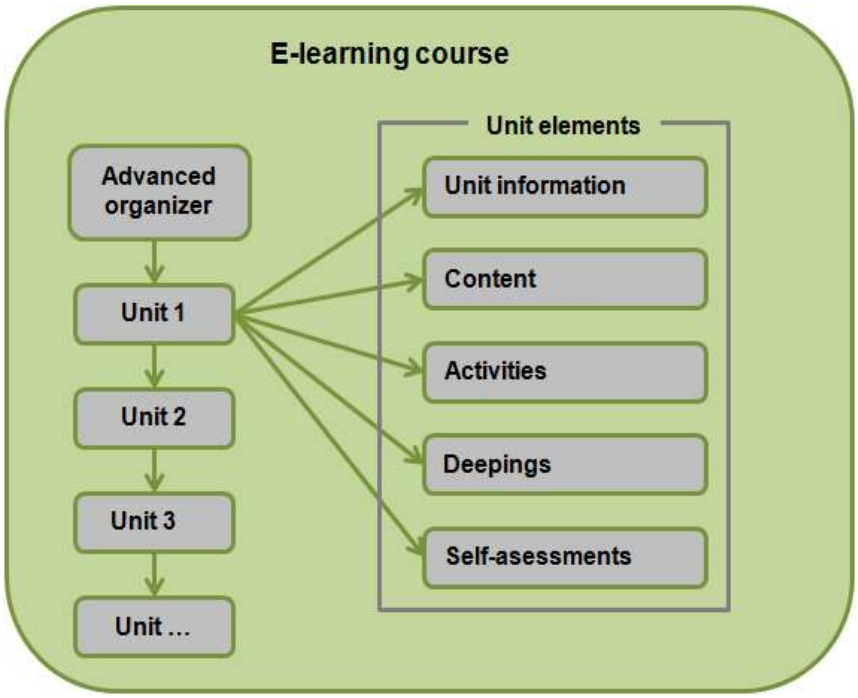


Figure 8: Basic structure of an e-learning course.

Advanced Organizer	Provides a brief overview of the entire structure of the course concerning the units and their topics and learning outcomes (e. g. easily done by a small figure)
Unit	Represents the basic element of a course; it is a closed informative unit that provides a complete competence/knowledge on a specific topic.
Unit element „Unit Information“	Provides a brief overview of the unit: specific topic, specific learning outcomes, relation/position to other topics within (or outside!) the course, significance of the topic (for the entire study), duration for studying the unit, optional information on start of a unit and the deadline of an activity and/or a self-assessment, etc.
Unit element „Content“	Contains the actual content of the unit; the multimedia contributions, as well as textual component, are displayed.
Unit element „Activity“	Describes the necessary activities of the students; includes the learning method as well as the specific instructions.
Unit element „Deepings“	Free content (textual or different multimedia), allows the learner to „deepen“ his/her knowledge in a free, self-regulated way; the role of such in-depth-analysis is crucial to guaranteeing breadth and depth throughout the learning process.
Unit element „Self-Assessment“	Represents a fundamental component both for the learner as well as for the teacher; the tests affect the comprehension follow-up of the topics treated in the unit and allow the learner to check her/his own level of comprehension; furthermore, it allows the teacher to monitor the effectiveness of the activities; through the tests one can define what support actions are needed for the learner, who does not meet the determined minimum levels.

Designing of an e-learning course – recommendations (D’Angelo, 2007)

Phase (1) – Structural design of the course

- ✓ Definition of the number of units.
- ✓ Definition of the topic of each unit.
- ✓ Definition of the specific learning outcomes of each unit.
- ✓ Design of an advanced organizer.

Phase (2) – Structural design of each unit

- ✓ Definition of the units’ time-length.
- ✓ Definition of the elements of the unit.
- ✓ Definition of the content (textual, multimedia, etc.).
- ✓ Decision which tool, application, learning method fits best for the students to reach the learning outcomes.
- ✓ Definition of activities and planning of instructions.
- ✓ Definition of the “deepings” (in-depth materials).

- ✓ Definition of the self-assessment form.

Phase (3) – Design of the elements

- ✓ Design of the unit information.
- ✓ Design of the content (Be aware of the problem of copyrights).
- ✓ Design of activities and instructions.
- ✓ Design of the “deepings” (Documents, glossaries, hypermedia, web sites, etc.).
- ✓ Design of the self-assessment.

2.3.3.3 Online activities – methods and instructions

It is obligatory to take into account the learning outcomes during the learning process. There is no point in carrying out online activities without attaching them to concrete educational goals.

Methods and instructions – general recommendations

- ✓ Avoid unnecessary and pedagogically ungrounded use of tools and applications.
- ✓ Always think of suitability of tools and applications.
- ✓ E. g.: Do not just provide forums for the students and expect them to participate actively without further instructions. If a forum is installed on an e-learning platform make sure that the particular function of the specific forum is clear to the students. An example for such a function could be the “agenda-setting”: The students can influence the topic of the next face-to-face or online-session via admitting possible topics in the forum. For this means they have to post a coherent statement concerning the topic of their choice and discuss it online with their fellow colleagues. In order to make this happen, the given statements should not be limited to simple questions. The teacher´s role as a moderator enables him to pick only those topics that have been submitted appropriately via the forum.

In a serious e-learning environment exists a wide range of applications (depending on the environment). Every e-learning application should be designed following certain

principles regarding the arrangement and the utilization of the prospective application that has been chosen.

The first part of this chapter is focusing on such principles regarding the design for primary applications. The tools introduced in this chapter have been chosen according to the likes of the students in regard to the results of a survey among the ELLS-students.

In the second part of this chapter other applications and tools are presented and further online activities are described. In the third part some recommendations concerning instructions are given.

FIRST PART – primary applications

➔ **Online communication**

Online communication has fewer personal barriers than face-to-face communication, so the boundaries between teacher and student can blur a little from time to time. It is the teachers' task as an e-moderator to prevent this from happening. This could act as a barrier for the students to take part in online-discussions. Structure is the key!

Online communication – general recommendations

- ✓ The teacher should prevent students from making a race out of online discussions. It should be clear to them that participating online is not about who is the fastest to post comments. The quality of the comments should always remain the top priority. The teacher should try to motivate the participants by either nominating the most helpful posting himself or let the students pick a winner. The reward for the student could be a better grading.

„Discussions ended up being a race about who would answer the teachers' questions first"

☹

ELLS-Student

- ✓ If an online discussion is initiated, try to stick to one topic. Additional questions concerning other areas of the learning matter might confuse the students.

- ✓ If possible try to involve experts in the field of interest to an online discussion. This way the teacher is able to enrich online discussions by adding some additional knowledge and he can remain the sole moderator of the discussion. When involving experts, it is important to limit their involvement by reducing the time-spans they are active on the platform and/or create extra rooms for the students to get in touch with the expert (e. g. chats).
- ✓ When an online debate is planned, try to use short and concise literature to trigger off the involvement of the students. Do not overwhelm them with long and rather complicated literature. This will only act as an additional barrier for the participants and they might be discouraged. Using a structured text makes it easier for the students to use the literature as a reference during the online debate.
- ✓ The teacher always has to stay on top of the online activities on his platform. Therefore, summarize important posts from the forum/outcomes from debates. Try to create new impulses (e. g. post a rather provocative headline from the newspaper regarding the learning matter and wait for the students´ reaction) and try to set the focus on certain topics.
- ✓ Moderation is also needed at the end of a debate. Tactics which can be used to close a debate are to ask for closing statements or to create short polls.

Within online discussions there are different forms of communication concerning the response time between action (e. g. questions/contributions by students) and reaction (e. g. answers/feedback by the teacher): Synchronous and asynchronous forms. Both forms have different implications, strengths and weaknesses.

Synchronous communication: e. g. chats – information and recommendations

Synchronous tools enable real-time communication and collaboration in a "same time but different place" mode. These tools allow people to connect at a single point in time, at the same time. Synchronous tools possess the advantage of being able to engage people instantly and at the same point in time. The primary drawback of synchronous tools is that, by definition, they require simultaneous participation – different time zones and conflicting schedules can create communication challenges.[1]

[1] http://www.asaecenter.org/Resources/articledetail.cfm?itemnumber=13572

- ✓ Use chats only to discuss issues of low complexity.
- ✓ Try to limit the number of participants or it could end up being very chaotic. As a maximum number of participants five people suffice to keep the chat going without making a mess out of it. (A higher number of participants could end up in sheer frustration preventing the teacher and the students to join into online activities like these again.)
- ✓ Try to make the time the chat goes online as transparent as possible (maybe even mark it in the calendar) to ensure that the students participate.

Asynchronous communication: e. g. forums – information and recommendations

Asynchronous tools enable communication and collaboration over a period of time through a "different time and different place" mode. These tools allow people to connect together at each person's own convenience and own schedule. Asynchronous tools are useful for sustaining dialogue and collaboration over a period of time and providing people with resources and information that are instantly accessible, day or night. Asynchronous tools possess the advantage of being able to involve people from multiple time zones. In addition, asynchronous tools are helpful in capturing the history of the interactions of a group, allowing for collective knowledge to be more easily shared and distributed. The primary drawback of asynchronous technologies is that they require some discipline to use when used for ongoing communities of practice (e. g., people typically must take the initiative to "login" to participate) and they may feel "impersonal" to those who prefer higher-touch synchronous technologies.[2]

- ✓ The teacher must set own limits and make them transparent. He must let the students know from the very beginning when going to be online and when they can expect answers to their questions. (This will prevent the teacher from reading annoying posts like „I still did not receive an answer to my question although I already posted it yesterday”.)
- ✓ If written accusations ever get too personal, try to bring them back on the professional level without catering to the accusations.
- ✓ Try not to use too many different forums, keep it simple in order not to confuse the

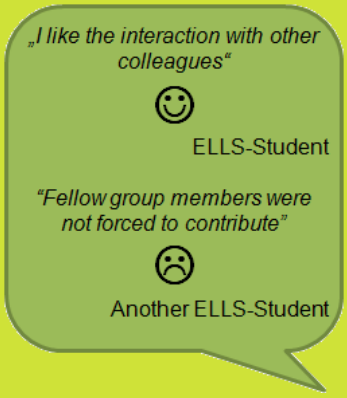
[2] http://www.asaecenter.org/Resources/articledetail.cfm?itemnumber=13572

students.

- ✓ To keep the students motivated try to keep them informed on a regular basis by sending them mails. These updates should include information on the ongoing discussions, new ideas concerning the topic in question, controversial statements as well as announcements introducing of invited experts.
- ✓ Another way to keep the students interested and alert for the ongoing discussions and debates online, could be to have them sent automatically generated emails as soon as another colleague has responded to their post (This is a feature on many e-learning-platforms). If possible, these emails should not include the complete post. This could act as an incentive to visit the platform.

➔ **Group work / project work**

Group work / project work – recommendations



- ✓ To avoid free riders (team members leave the required work to the other members) set the terms right from the start. Make sure it is understood that one of the requirements of the course is for each students to mark the parts they worked on in a paper during group works, individually. The individual part of their work must be visible for the teacher.
- ✓ Use a feedback circle: Papers and home exercises are numbered and uploaded on the platform. Each participant (or small group) has to write a feedback on one of the uploaded papers. This technique will increase the likelihood of feedback due to the moral pressure each and every student is under. Make sure that the whole process (papers and feedback) are visible on the platform.
- ✓ Use moderation circles: The participants have to prepare the moderation of an online or a face-to-face session. This means that the assigned group has to moderate the presentation of another group. This can be done by preparing short questions for the group and/or an introductory presentation for other groups. These presentations can be uploaded on the platform and initially used for follow-up discussions.

- ✓ Use buzz groups: A group is divided into sub-groups ranging from three to six persons each, for a brief period of time, to discuss an assigned topic or to solve a problem. A representative from each sub-group should report the findings to the entire group. It allows for total participation by group members through small clusters of participants, followed by discussions by the entire group. It is used as a technique to get participation from every individual in the group.

➔ **Online tasks**

Online tasks – information and recommendations

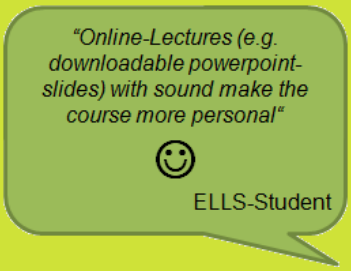
An example for an online task is a so called web quest. A web quest confronts students with an authentic situation and provides them with a controlled instruction for research. Via the internet they have to deal with the given problem and find a solution to it. Therefore the learning goals of a web quest are inter alia to collect relevant information, to develop a suitable solution for the given problem, and to present it adequately (e. g. as text, slides, or short videos), mostly done in group work.

- ✓ Try to keep the task clear and understandable.
- ✓ Provide a very small guide which steps are useful.
- ✓ Ensure that students use the right and suitable sources (e. g. scientific journal articles, relevant web-pages).
- ✓ Don't leave students confused and unable to cope.

➔ **Online lectures**

Online lectures – recommendations

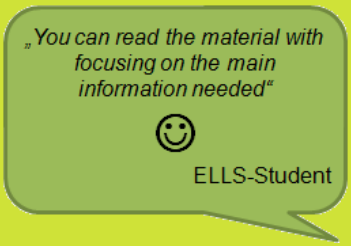
- ✓ If slides (via download) of lectures shall be provided, struggle to integrate sounds in the slides (oral descriptions, explanations, etc.)
- ✓ Break the big topics up into small chapters, to make it easier for the students to catch up.
- ✓ In case for interest to prepare own instructional videos for the students, remember also to seek for advice at the e-learning department of the university.



➔ **Self-assessment**

Self-assessment – recommendations

- ✓ Beware that the questions have to be chosen carefully: Focus on the key aspects that are wanted the students to know and leave out everything that can be considered as „not that important".
- ✓ Also plan the timing of a self-assessment. When shall the self-assessment be visible for the students? Is it wanted to test their knowledge before starting with a new chapter or is it wanted to use them as a tool for self-assessment?



SECOND PART – A few more e-learning applications

There are many more applications/methods/activities, see e. g. "*50 Interesting things you can do in your online courses*"[3]. Here a short list of selected further activities can be found:

- Quizzes: These can be used as self-assessment quizzes for the students to assess their learning progress or as a mandatory part of the course. They can be very efficient when used as a self-assessment tool right after a learning chapter has been finished. This is a very good way for students to find out where they stand, in terms of the knowledge they should have acquired during the course.
- Calendar: A calendar can be very useful to remind students of certain deadlines or make them aware of important events (e. g. an upcoming guest lecture).
- Blogs: Blogs can be used as scientific diaries or to reflect on certain learning matters. One assignment for the students could be to let them know the topic of the next lecture or unit of a seminar and let them prepare three questions they are interested in finding the answers to regarding the topic, and what they expect to learn from the lesson. After the lecture has taken place they could be asked to answer their questions or argue why they cannot answer them (yet) and state if their expectations have been fulfilled.

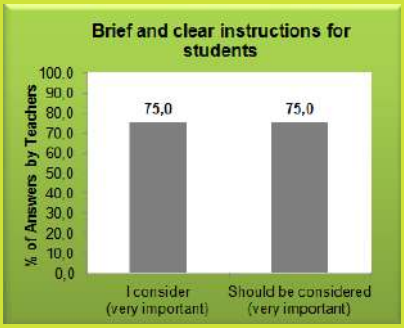
[3] http://jmajor.midsolutions.org/?p=261

- Wikis: Few LMS feature wikis but there are a lot of freeware. These come in handy if the teacher wants that students work collaboratively. They could be split into groups, whereas each group is assigned a certain set of terms they have to define.
- Folders: Folders should always be created when necessary to give some structure to the e-learning platform. Do not forget to label them properly. Students should be able to navigate on the platform without any problems.
- Ask the expert: Students have to prepare the e-moderation and online-discussion with an expert. Therefore they have to collect questions and controversial statements they can confront the expert with. A few students are explicitly responsible for moderating the discussion and also for collecting the questions from the other students beforehand. They also have to structure the discussion by compiling a catalogue of questions which will then be asked during the online-session. The other participants can then ask questions according to the topics listed in the catalogue, compiled by the moderating group. Besides the acquisition of know-how the moderating group also gains e-moderation-skills.

THIRD PART – instructions

Instructions – recommendations

- ✓ Make sure all instructions are clear and were explained step-by-step.
- ✓ Do not change instructions.
- ✓ Make sure instructions refer to provided content.
- ✓ Expect several students will not read/follow instructions – help them understand when their independent work is desired or acceptable, and in what units or unit elements the briefing "follow the instructions" is strictly required.



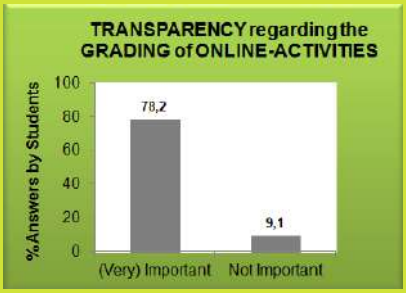
- ✓ The formal criteria of assignments should be clear and transparent to the students (e. g. make sure to inform them on the file format which has to be used as well as on the amount of pages they have to write).
- ✓ Deadline: One of the most important formal criteria of a course is the setting of deadlines (e. g. on assignments). When providing students with assignments, make sure to include the date of the deadline!

- ✓ The teacher also has to point out the importance of deadlines in his syllabus or another administrative document on the platform. This said, it is important to stick to deadlines as well. Because online sessions have to be very structured due to their nature, it is very hard to keep students motivated to comply with the rules set up for the course, if the teacher does not abide them (e. g. dates of feedback to papers will be uploaded by the teacher).
- ✓ Feedback: If providing students with regular feedback on their papers via the platform, he has to make sure to announce the dates for the feedback accordingly and stick to them. Also define what the teacher´s feedback will include and which structure it will have, beforehand. This way students will know what and what not to expect of the teacher and misunderstandings will be prevented.

2.3.3.4 Grading of online activities

Grading of online activities – recommendations

- ✓ Students want to get a separate transparent grade for their online activities!
- ✓ Try to develop a grading system that solely takes into account the online activities of the students. Of what elements this grading system is made up of, depends on the basic didactical concept and therefore on the methods applied by the teacher in the course as well as the online activities of the students. One way of doing so, could be to count the participants' posts in a forum or to keep track of whether they stick to given deadlines or not. Other means of grading the online participation could be to review the quality of the students´ postings and the online participation. If it is intended to install a grading scheme along these criteria, make sure to keep the grading system very transparent for the students. Otherwise teachers' actions could backfire and act as a barrier to students´ online activities.



- ✓ There are many other criteria for grading online activities possible – teachers should be creative in inventing new suitable and working criteria.

3 Evaluation of e-learning

At most universities a standard course evaluation system exists. Often the evaluation of e-learning is underrepresented or focuses strongly on the technical aspects of an e-learning platform.

In the following chapters different approaches to evaluate the use of e-learning on the course level, are proposed. The focus is always on pedagogical and didactical aspects. In a first step a system of quality indicators is presented.

3.1 Quality dimensions and quality indicators

Derived from the characteristics of good e-learning (described in the overview above) there are in sum 63 quality indicators. These indicators are attributed to four quality factors (level I) with 18 dimensions (level II):

(1) Quality of e-learning environment	(2) Quality of teacher behaviour	(3) Quality of didactics	(4) Quality of learning
(1) Quality of technical support (2) Quality of content-usability (3) Quality of visual-usability (4) Quality of guidance usability (5) Quality of technical possibilities of interactions	(6) Quality of diversity management (7) Quality of communicating online (8) Quality of giving feedback (9) Quality of motivating students	(10) Quality of structure (11) Quality of online activities (12) Quality of instructions (13) Quality of „free deeper learning“ (14) Quality of self-test (15) Quality of grading of online-activities	(16) Quality of added value (17) Quality of results (18) Quality of suitability

The 63 quality indicators (level III) in detail are presented in the annex. This quality indicator system is the precondition and the basis for the evaluation approaches, which will be presented in the following chapter.

3.2 Evaluation approaches

There are three proposed evaluation approaches: The “Global Student Questionnaire”, the “Specific Student Questionnaire”, and the “Assessment by Peers”.

Global student questionnaire for a general feedback
➔ Considering all four level I quality factors by using 15 core questions

In the “global student questionnaire” the teacher has the option to collect general feedback on his/her teaching by using assorted questions that cover the central indicators of all four quality factors (level I). The questionnaire can be found in the annex.

Specific student questionnaire for a more detailed and deeper feedback

➔ Depending on the goal of evaluation selecting ONE of the level I quality factors with specific questions:

(1) Quality of e-learning environment	14 questions
(2) Quality of teacher behaviour	15 questions
(3) Quality of didactics	24 questions
(4) Quality of learning	10 questions

The "specific student questionnaire" enables the teacher to focus on certain aspects of their teaching they want to get some deeper insight on. Out of several categories like "quality of e-learning environment", "quality of teacher behaviour", etc. more in depth-questions than in the global questionnaire can be chosen. All four "specific questionnaires" include the "core questions" which build the "global student questionnaire" (see above). The questionnaires can be found in the annex.

Assessment by peers

➔ Experts or critical friends assess the fulfillment of (selected) quality indicators

The idea of the "assessment by peers" is that external peers analyze and assess the fulfilment of a specific and selected set of quality indicators ("external" means that these peers don't belong to the course team). This methodology works with so called *abstract tasks*. These tasks guide the peers' activities, precisely describing which indicators to look for, and which actions to perform during the inspection, in order to analyze the fulfilment of the indicators. This way even less experienced peers are able to come up with more complete and precise results.

Abstract tasks (AT) are formulated by means of a template providing a consistent format that includes the following items:

Item	Description of item	Example
Classification	Univocally identify the AT and its purpose	Correct and clear specification of titles in order to facilitate search for documents (level III quality indicator 4)
Focus of action	Lists the indicators to be evaluated	Unit element / individual learning process
Intent	Clarifies the specific goal of the AT	Evaluate modalities, commands, and tools for access to course documents
Activity description	Describes in detail the activities to be performed during the AT	Explore documents following different topics
Output	Describes the output of the inspection	The documents structure and titles permits an easy retrieval of relevant documents without confusion

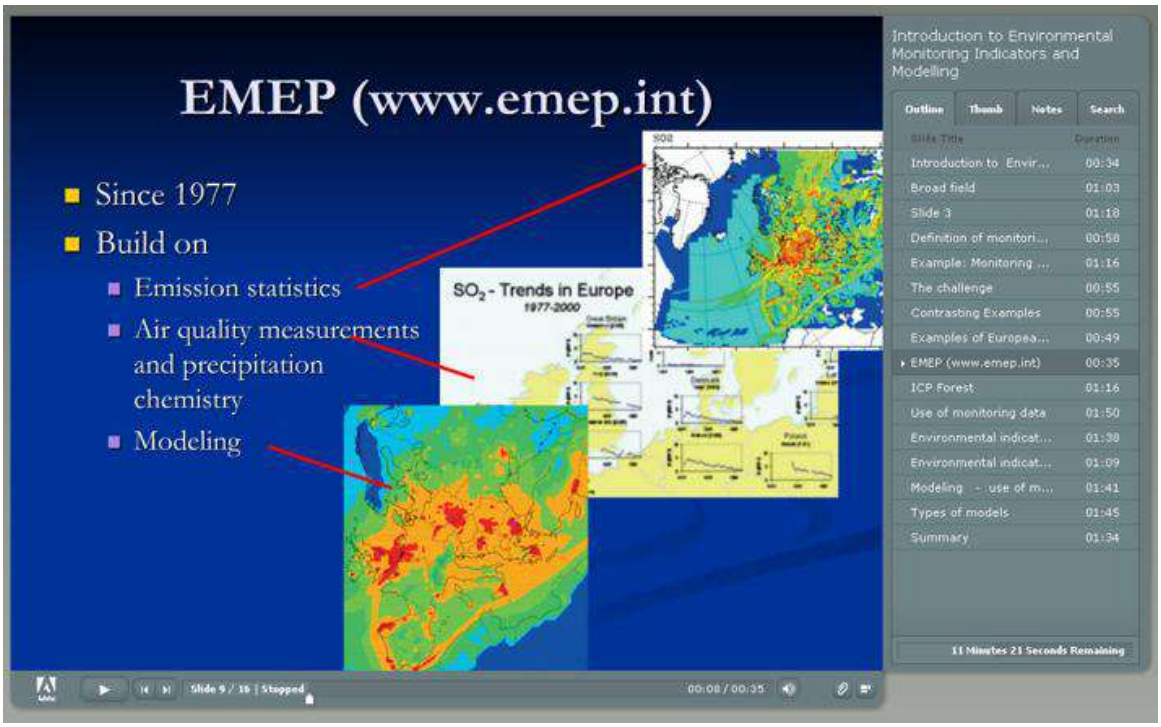
During the assessment, peers analyze the indicators by using the defined AT's. In this way, they have a guide for identifying the aspects to focus on, analyzing them and producing a report in which the discovered problems are described. For more information on that methodology see Ardito et al. (2006).

4 Good practice examples

There are many examples for e-learning at the ELLS universities. With so many different LMS in use and the many subjects taught at universities the variety in e-learning is also vast.

The aim of this chapter is to provide a few ideas on e-learning. Below we have compiled a set of good practice scenarios using e-learning in higher education.

Good practice example 1



When providing for instance distance learning you can put narrated Power Points on the internet as a resource for the students. The above example is made by Adobe Presenter but there are a lot of other applications who can do the same. You need to put it on a website like a LMS to give the students access to the resource.

Good practice example 2

Can student produced videos transform university teaching? This course is held during the ELLS-Summer-School „Restoration of European Ecosystems and Fresh Waters“.

„The course comprises four to five weeks of full time study; two to three weeks distance learning as preparation for the two week intensive field course.“[4]

As the title already suggests, the course is using new media (in this case videos and a strong focus on student centred-learning) to innovate students learning. The course itself was designed from LIFE[5].

The students attend six weeks of part-time e-learning at home and two weeks of field course in one of the ELLS-communities‘ countries. The students take part in a video-conference before the summer school starts. Here they get an introduction on the course and its contents as well as information on the lecturers and the country they will be doing the field-work in.

The participants have to produce three different types of videos:

- Video one has to be independently produced by the students, guided by online tasks and instructions. These videos have to be student produced learning material, showing cases from all over Europe. The videos are collected and presented in a "visual database" in Google maps.
- Video two has to be produced in groups during the field course. Video two replaces a larger written assignment.
- Video three has to be produced in groups during the field course. The videos are an experimental field exercise, and the production is guided by a “dogma concept“, meaning that everything should be done in the field.

As for the evaluation of the last course the students claimed that the production of scientific videos was fun and it was considered that being able to make such videos might be an important tool for future scientific work.

The project deliverables consist of the following major points:

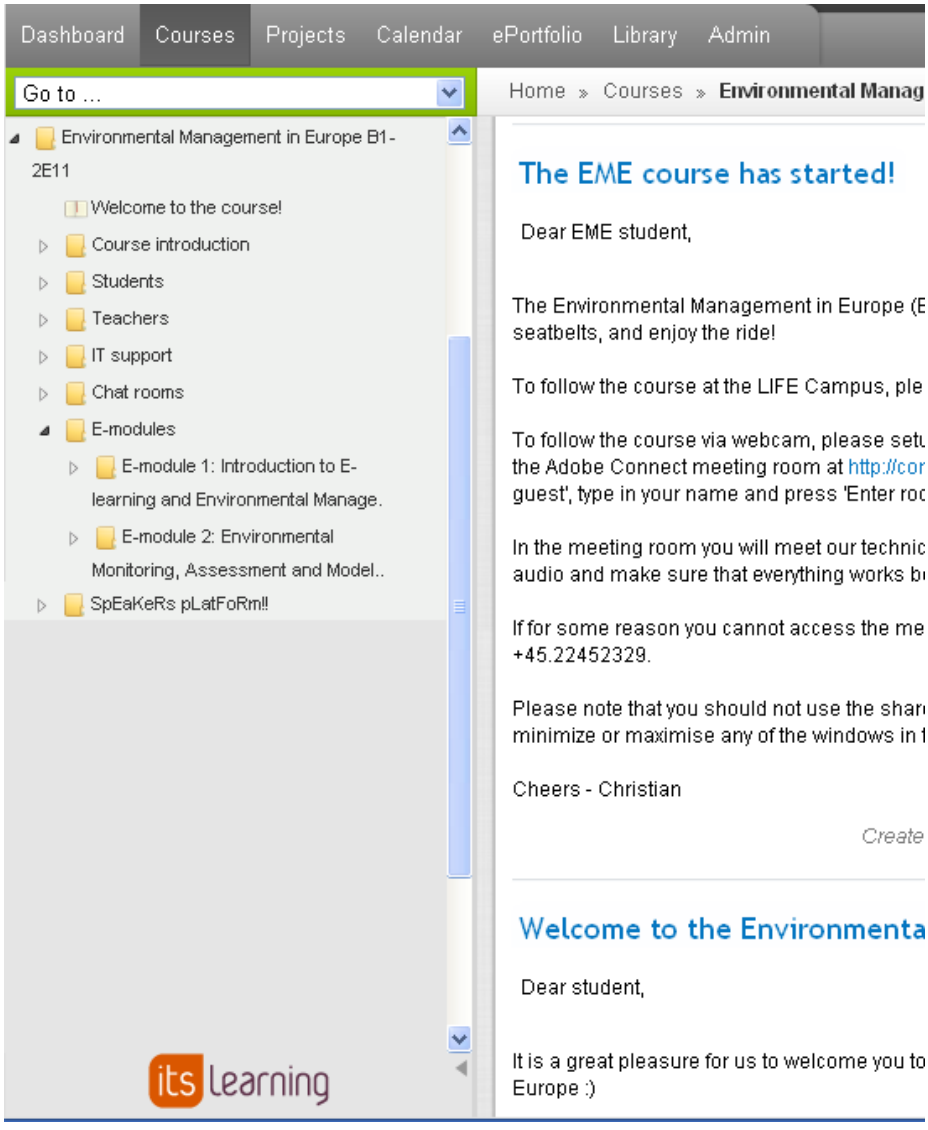
- A pedagogical design for how to include experimental field work in distance learning courses.
- Procedures for how to use video to report larger assignments and field exercises.

[4] http://www.itlc.life.ku.dk/it_paedagogik/Projekt_Den_Gode_Uddannelse_2011/REEF.aspx, 2011
[5] Bjarne Strobel and Alejandro Ceballos

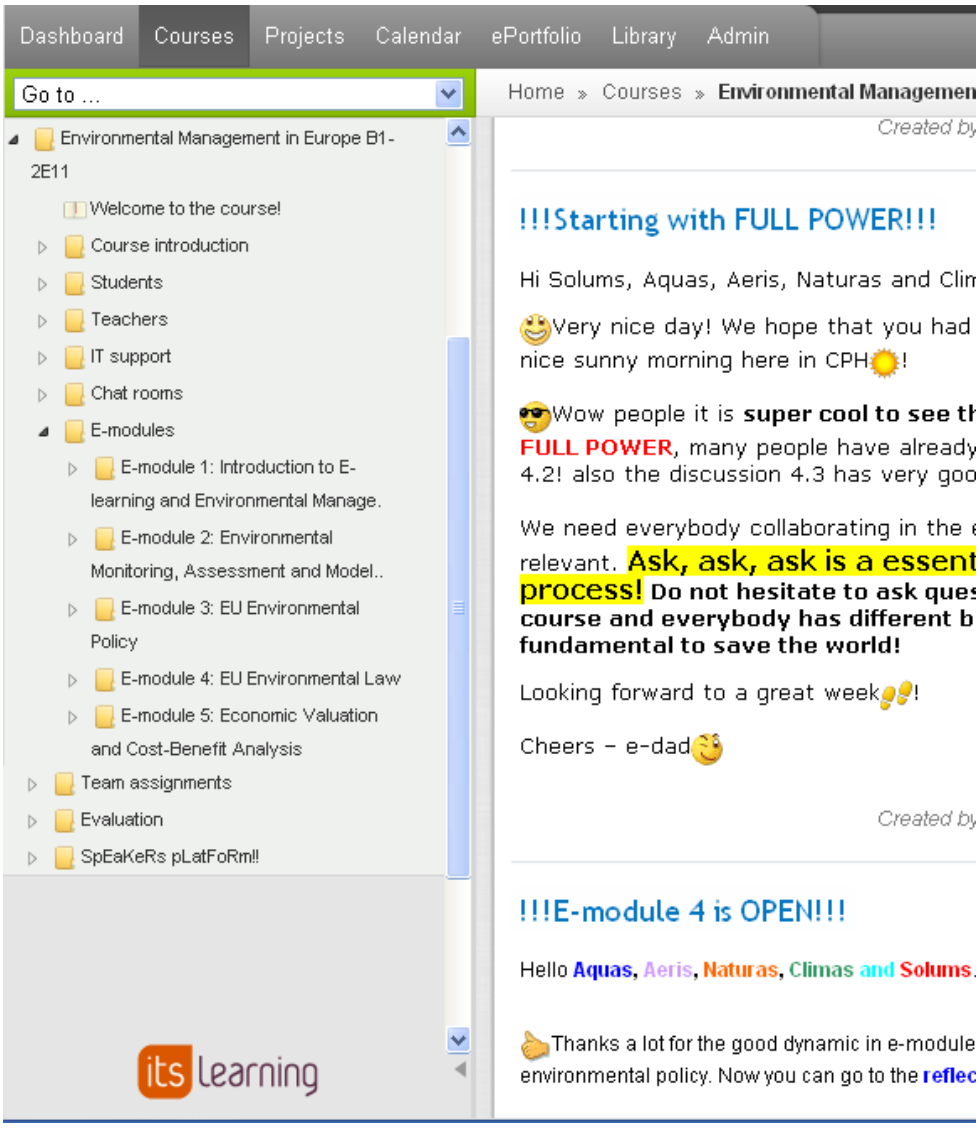
- Procedures for how to activate students in the production of learning material by use of video.
- An online based guideline for training students to produce video assignments for communicating academic information to the public.

Good practice example 3

Here is a good practice example for course structure taken from the ENVEURO course “Environmental management in Europe”. The course is set up in the LMS “it’s learning”, which gives you a MS Explorer like look with folders. In other LMS you can set up an “agenda” or similarly. The folders give a good overview for the students of the content of a course as long as the titles are guiding and adequate.

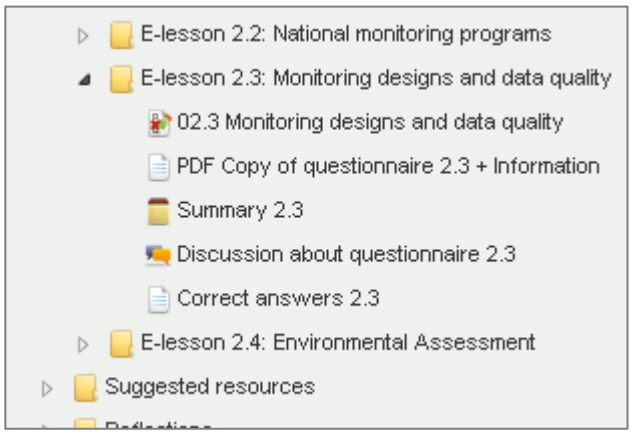


Not all folders are shown from the start, so the students won't become overwhelmed by the amount of information. As you can see in the next figure more folders are shown as the students´ progress in the course. At the same time helpful (and colourful) messages are shown when the student log in to the course also guiding them in what to do and what is expected.



Good practice example 4

An example for mixed content can also be taken from the ENVEURO course "Environmental management in Europe". Here the content is arranged so that the students are never in doubt of which element that belongs to the unit or module even though the elements are of different nature: Test, file download, web page and a discussion.



Good practice example 5

In the winter semester of 2011 BOKU, CULS and LIFE developed a unique e-learning-setting for students who are interested in agricultural political decision making in the EU. The official title of the course was „Voting for a European Vision on Sustainability Simulation of EU decision processes". The content of the course is described as follows.

> „Students engage in a game to simulate the process of agriculture related political EU negotiations. They represent political EU parties, decision makers of EU institutions or important political agents such as NGOs or European farmer associations. During the course students formulate their positions, search for alliances, make bilateral talks and try to find a majority for their proposal, all with the aim to prepare for the final meeting in Brussels. Students will communicate with each other over videoconferences, discussion groups and face-to-face."[6]

The course had a capacity for 30 students (split equally between students of the three executive partner-universities). BOKU's e-learning platform „Moodle" was in use throughout the course.

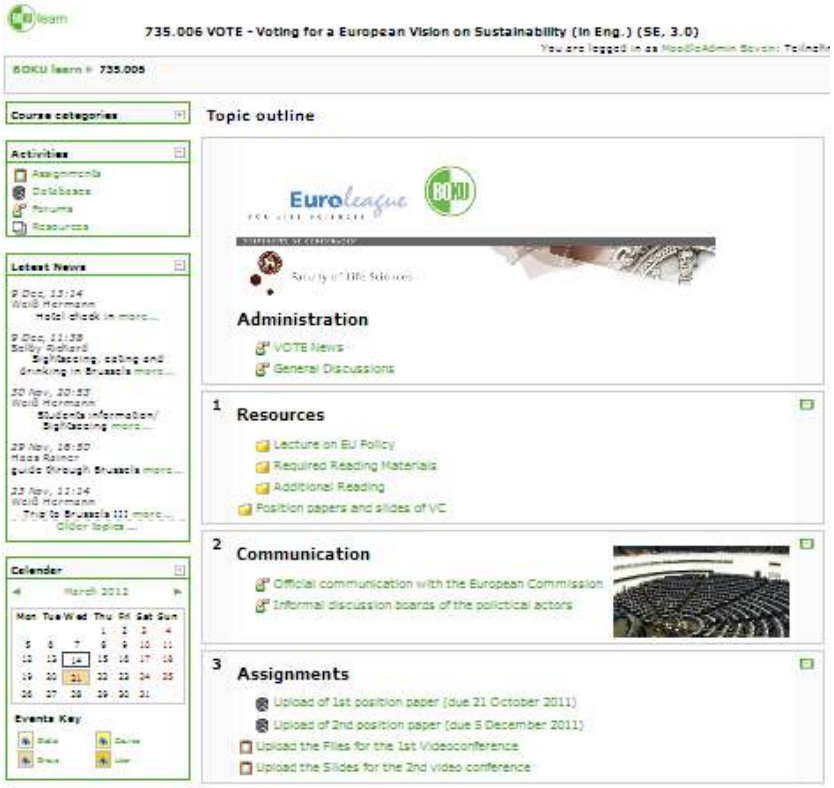
[6] Course Syllabus VOTE, 2011

Regarding the learning objectives and outcomes the lecturers state the following:
This e-learning course …

- enables closer cooperation within ELLS universities;
- brings students from different countries together;
- enables exchange of information and opinions;
- explains EU decision process;
- fulfils education and social functions at low cost.[7]

There were three rounds of actions the students had to participate in. In the first round the students had an informal discussion online where their task was to admit at least one posting stating their opinion. After that they had to write their first position paper in teams and attend a video conference. The video conference was used as a live discussion to enable all participants to share and state opinions.

Screenshot:
online course



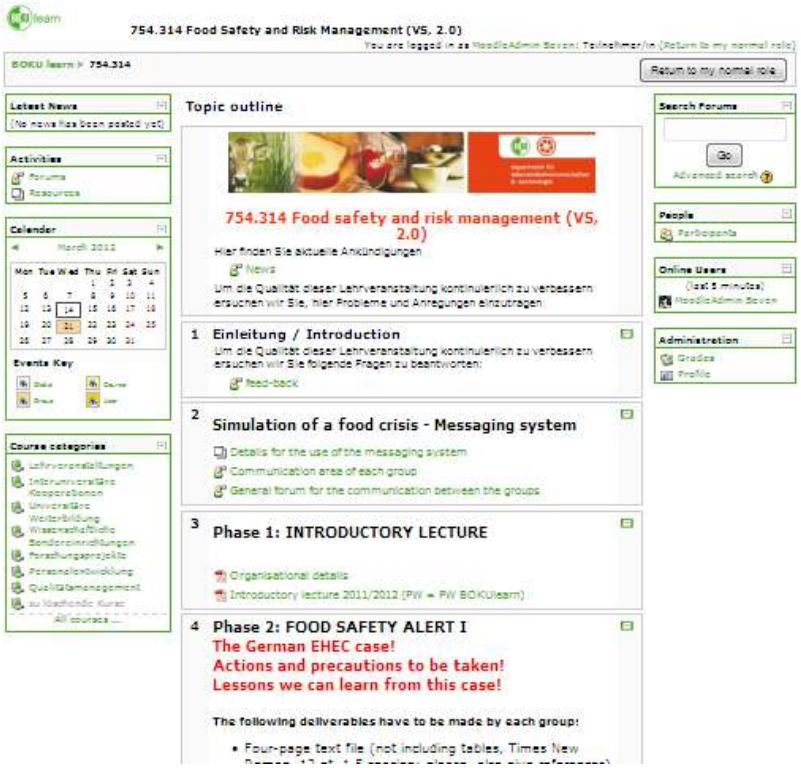
[7] Tomsik, 2011, unpublished

In the second round the students had to come up with a commission paper. Additionally they had to prepare themselves for the reactions regarding their papers in a discussion during the second video conference. The third and final round of the course consisted of the writing on the second position paper and also the second commission paper. The students then had the chance to go to Brussels and to participate in a face-to-face conference. A final voting took place by the students representing the Council and the European Parliament.

Good practice example 6

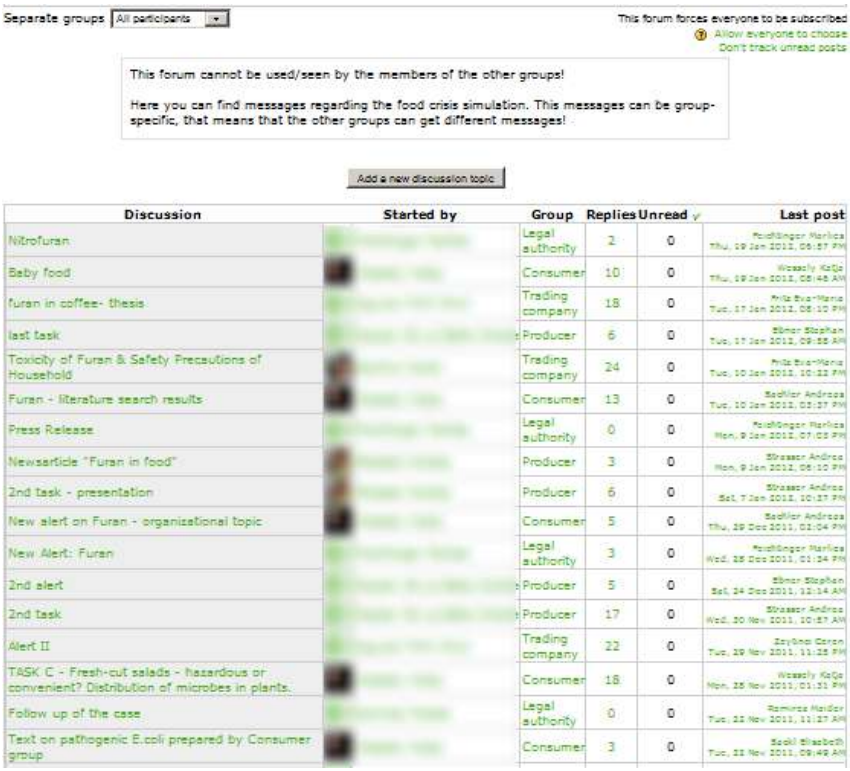
At the University of Natural Resources and Life Sciences in Vienna a course was created which used the e-learning platform (in this particular case „Moodle“) to enhance a role-play which was taking place during the semester. This course was part of the subject „Safety in the Food Chain“. The students were briefed considering the topic „food crisis”. Then they had to take over different roles simulating a food crisis. In their roles they had to take over the positions of the people they represented. A „press conference“ took place and a protocol was written. The platform was used to provide course information for the students. Also the protocols of the „press conference“ were put online. In addition to this the students had the possibility to exchange ideas and thoughts via an online-forum. The messaging-system was also used (see Kertesz, 2007, p. 4f[8]).

Screenshot: online course



[8] Kertesz, Dora: E-Learning Erfahrungsaustausch 21.02.2007 http://www.boku.ac.at/fileadmin/_/e-learning/downloads/veranstaltungen/20070221_kertesz_erfahrungsaustausch.pdf, July 2011

Screenshot detail: forum for group discussion (all groups view)



Separate groups | All participants

This forum forces everyone to be subscribed
Allow everyone to choose
Don't track unread posts

This forum cannot be used/seen by the members of the other groups!

Here you can find messages regarding the food crisis simulation. This messages can be group-specific, that means that the other groups can get different messages!

Add a new discussion topic

Discussion	Started by	Group	Replies	Unread	Last post
Nitrofuran	[redacted]	Legal authority	2	0	[redacted]
Baby food	[redacted]	Consumer	10	0	[redacted]
furan in coffee- thesis	[redacted]	Trading company	18	0	[redacted]
last task	[redacted]	Producer	6	0	[redacted]
Toxicity of Furan & Safety Precautions of Household	[redacted]	Trading company	24	0	[redacted]
Furan - literature search results	[redacted]	Consumer	13	0	[redacted]
Press Release	[redacted]	Legal authority	0	0	[redacted]
Newsarticle "Furan in food"	[redacted]	Producer	3	0	[redacted]
2nd task - presentation	[redacted]	Producer	6	0	[redacted]
New alert on Furan - organizational topic	[redacted]	Consumer	5	0	[redacted]
New Alert: Furan	[redacted]	Legal authority	3	0	[redacted]
2nd alert	[redacted]	Producer	5	0	[redacted]
2nd task	[redacted]	Producer	17	0	[redacted]
Alert II	[redacted]	Trading company	22	0	[redacted]
TASK C - Fresh-cut salads - hazardous or convenient? Distribution of microbes in plants.	[redacted]	Consumer	18	0	[redacted]
Follow up of the case	[redacted]	Legal authority	0	0	[redacted]
Text on pathogenic E.coli prepared by Consumer group	[redacted]	Consumer	3	0	[redacted]

Good practice example 7

The Czech University of Life Sciences in Prague is using a so called „smart board“. A smart board is more or less a „white board“ which is connected to the computer. This means that notes can be written on it with digital links but also save whatever has been written on the computer.[9] Of course this kind of teaching is only possible if those boards are available, however the acquisition might not be a cheap investment.

Good practice example 8

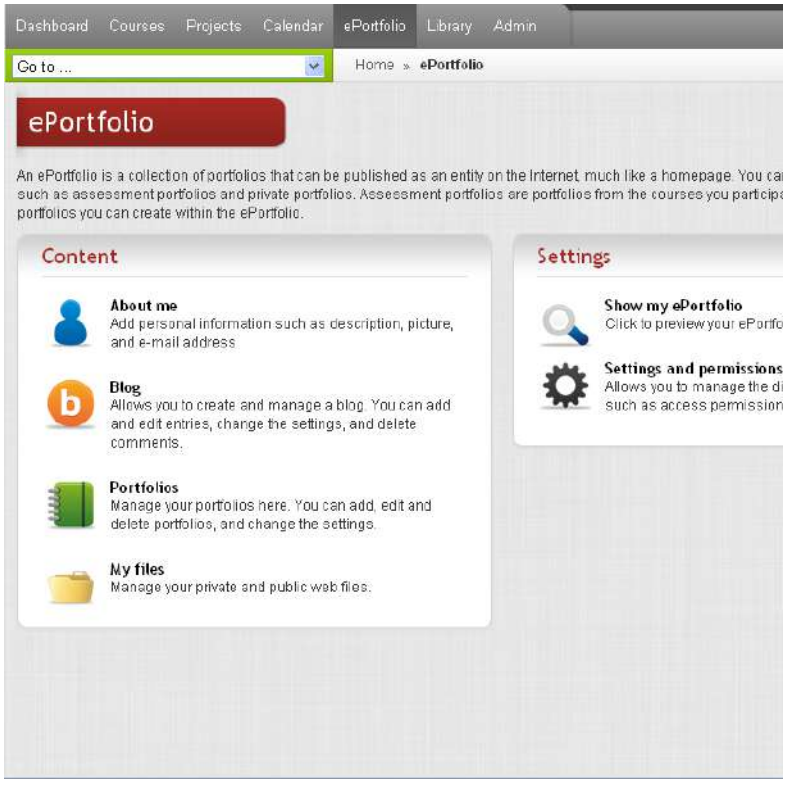
At the University of Hohenheim in Germany a kind of scavenger hunts are planned. Learning matters will be delivered to the students via smart phones while they have to fulfil certain task. This way of teaching encourages the collaborative learning but it is also connected with a lot of workload (for the teacher during the preparation process) and the investment of a lot of money (for providing the students with the necessary equipment).

[9] http://smarttech.com/us/Solutions/Education+Solutions/Products+for+education/Interactive+whiteboards+and+displays/SMART+Board+interactive+whiteboards , July 2011

Good practice example 9

A good practice example for the use of e-portfolios: In distance learning courses it is a hurdle that you don't meet people in person and socialisation can be an important part of the learning process. In the course "Environmental Management in Europe" the students and teachers are making a personal presentation of themselves in an e-portfolio.

The e-portfolio can have additional pages linked together and even links to the student's assignments or other files. It is also possible to set up a blog which makes it possible to have a more "Facebook" like communication with fellow students:



Good practice example 10

The following are examples of e-tivities made according to the “The 5-step model” (Salmon, 2002). Notice the recognizable structure of each activity which is a necessity through all parts of an online course:

Step 1 example: E-tivity 0.2 - Been to the jungle?
Purpose: to practice writing a message
Task: Have you been inside a forest in a developing country? If yes, respond to the query posted by Carsten, just a few lines, in your group about where and why. If no, respond with a few lines about where you would like to go and why.
Deadline: Must be completed by Thursday 1 September at 22.00 CET.

Step 2 example: E-tivity 1.3 - Finalise and post your personal presentation in Absalon
Purpose: learn to post a personal presentation and share background information with other participants
Task: You have received a draft personal presentation from one of your group members. Use this as inspiration for writing your own personal presentation. When you have completed this brief description, you post it for the other students to read. To post it, go to the "Participants" page (5.2) and click on your own name. Click the "edit" button to edit you profile. The profile you save here will be special to this course. If you wish to make a general profile covering all courses using the Absalon system, go to "Users" item (visible when you log on to Absalon) and edit your profile there. This distinction allows you to emphasize different aspects of yourself depending on what course you are enrolled in. Visit the "Participants" page over the next couple of days to the read the descriptions of your co-students. Of course, you can always up-date your profile. For instance, to say that you have completed the course “Applied socio-economics in tropical forestry” J
Deadline: Thursday 8 September 22.00 CET.

Step 4 example: E-tivity 4.1 - What is a forest?
Purpose: Understanding "what is a forest" is a key to planning a number of activities. For instance (i) if you wish to estimate the forest-derived income in a local community, what do you include? Only income related to closed canopy forest? What about from agroforestry? Or (ii) if you wish to convince the World Bank that forest-derived income should be integrated in Poverty Reduction Strategy Papers, then what should be counted as forest income? In this e-tivity, we will discuss this key issue across all participants.
Task: Carefully study the forest definition used by FAO in the Forest Resources Assessment 2000 (FRA 2000). Is this a good and useful definition? Why/why not? What are the advantages and disadvantages of the definition? How can the definition be improved? Each participant must post at least one message and respond to at least one message by another participant. At the end of the discussion, one member from each of the small groups will together summarize the entire discussion and post a summary.
Deadline: Friday 30 September at 12.00 CET.

Step 4 example: E-tivity 9.1 - Uncover present status for international forest negotiations
Purpose: As you have found in the compendium texts, including the short paper Olsen (2004) found in the left hand menu of the Read section of this module, the international forest negotiations have been difficult and protracted. The paper Olsen (2004) does not include the outcome of the UNFF-5 meeting held in May 2005. The purpose of this e-tivity is to up-date the paper to include the main outcomes from the UNFF-5 meeting.
Task: Use the web to find high quality summaries of the forest negotiations at UNFF-5. Synthesise your findings into a brief message and post it. Comment on other postings in your group as appropriate. Each group will prepare a summary of their findings and post in the Discussions for all group. A summary may be no more than 150 words.
Deadline: Friday 28 October at 22.00 CET.

5 Future trends in e-learning

This chapter attempts to give some insight into the further development of e-learning, future trends and the use of new techniques. Educational Technology is a field that is rapidly changing. Therefore the ideas and techniques introduced to in this chapter can only be considered as trends. Some might establish themselves in the future but some may only remain wishful thinking.

In the annually published Horizon Report the following major key trends concerning e-learning were identified (Johnson, Smith, Willis, Levine & Haywood, 2011):

- The abundance of resources and relationships made easily accessible via the Internet is increasingly challenging us to revisit our roles as educators in sense-making, coaching, and credentialing.
- People expect to be able to work, learn, and study whenever and wherever they want.
- The world of work is increasingly collaborative, giving rise to reflection about the way student projects are structured.
- The technologies we use are increasingly cloud based, and our notions of IT support are decentralized.

These trends might not be striking news. It is a development which could be observed in the sector of higher education in recent years. Nevertheless it explains the rapid growth of e-learning in the past years.

Trends and changes in higher education call for challenges in these areas. They are manifold. The challenges named below are also taken from the Horizon Report (see above) and are listed according to their importance:

- Digital media literacy continues its rise in importance as a key skill in every discipline and profession.
- Appropriate metrics of evaluation lag behind the emergence of new scholarly forms of authoring, publishing, and researching.
- Economic pressures and new models of education are presenting unprecedented competition to traditional models of the university.

- Keeping pace with the rapid proliferation of information, software tools, and devices is challenging for students and teachers alike.

Besides the trends and challenges instructors and students face nowadays concerning e-learning, there are also technical changes and improvements on the way. Listed below are a few of the new technologies one might encounter when confronted with e-learning and its possibilities (Malamed, 2011):

Social Learning	Social learning is on the up rise in the e-learning-community. The use of twitter or LinkedIn is common amongst many instructors these days and it is a possibility to enhance collaborative working in the field of higher education.
Pocket Video Technology	These pocket video devices enhance the informal learning. Youtube is booming and daily thousands of videos (like tutorials) are being uploaded. It is a comfortable way to teach and share knowledge and might become even more popular at universities as well.
Mobile Learning	Due to the boom of smart phones mobile learning is getting more popular each day. The majority of people possess mobile phones and this means that when used as part of e-learning many more people can benefit from it.
iPad/Alt-Tablets	Portable tablets open up a whole new world of possibilities. They are portable, the screens are bigger than on a cell phone, making reading a text easier and they are nice to look at (design) which makes it attractive for a younger target population.
Virtual Worlds	Computer simulations were the first step; virtual worlds are a step beyond. They are very handy when it comes to medical applications, making it possible for more people to collaborate and learn together.
Augmented Reality	Augmented reality makes it possible to get information based on the locations a person is at. This technology enables the user to see objects that are blended by the computer with a video. It is an ideal solution for learning games on-the-go.
Blogs	Blogs are well in use in the educational sector already but are still booming. It gives teachers and students alike the opportunity to reflect, teach and network with colleagues.
eBooks	The use of e-books is expedited by the introduction of mobile devices. It is a way to distribute knowledge and might, in the future, also be a way to link different sources and make access to information even easier.
QR-Codes	This is a barcode that can be read by QR-scanners and mobile phones with a camera (which almost every mobile phone nowadays is equipped with). They can hold text, links or URLs. They might become more

	popular in the future.
Serious Games	Serious games refer to games used for training, advertising, simulation, or education that are designed to run on personal computers or video game consoles (Susi, Johannesson & Backlund, 2007). Serious games are already a very big business in the education sector but will become even bigger in the future. One such example of a serious game is „Enercities“, which offers a serious gaming - learning platform to experience energy-related implications. The goal is to create and expand virtual cities dealing with pollution, energy shortages, renewable energy etc.“ (www.enercities.eu/project/). Especially in the field of Life Sciences there are many possibilities to incorporate serious games, but they can be quiet costly and time-intensive.

6 References

Ardito, C., Costabile, M.F., De Marsico, M., Lanzilotti, R., Levialdi, S., Roselli, T. & Rossano, V. (2006). An approach to usability evaluation of e-learning applications. *Universal Access in the Information Society, 4,* 270–283.

D'Angelo, G. (2007). *E-Authoring – Didactic methodologies and models of e-learning content development*. [http://www.leonardo-lets.net/ict/common/download/GiuseppeDAngelo.pdf], Oct. 2011

Dabbagh, N. & Kitsantas, A. (2012). Personal Learning Environments, social media, and self-regulated learning: A natural formula for connecting formal and informal learning. *Internet and Higher Education, 15*, 3–8.

Davidson, A.-L. & Waddington,D. (2010). E-Learning in the university: When will it really happen. e-learning Papers. Nr.21. [http://www.e-learningeuropa.info/files/media/media23710.pdf]

Delgado, Mar (2008). Academic management of your Master degree programme – teaching and learning. In M. Delgado, S.-L. Hellgren, M. Nielsen, H. Vandecasteele, A. Wojciechowska & S. Heath (Eds.), *Handbook of good practice in the management of the academic studies and pastoral care of international Master students* (pp. 7-16). Gent, Belgium: Association for European Life Science Universities.

ECTS Users' Guide (2005). Brussels: Directorate-General for Education and Culture. [http://ec.europa.eu/education/programmes/socrates/ects/doc/guide_en.pdf]

Gardenswartz, L. u. Rowe, A. (2002). *Diverse Teams at Work. Society for Human Resource Management.*

Johnson, L., Smith, R., Willis, H., Levine, A. & Haywood, K. (2011). *The 2011 Horizon Report*. Austin, Texas: The New Media Consortium.

Kadle, A. (2010). *Elements For Constructing Social Learning Environments*. [http://www.upsidelearning.com/blog/index.php/2010/03/10/elements-for-constructing-social-learning-environments/] March 2012

Kennedy, D., Hyland, A. & Ryan, N. (2007). Writing and using learning outcomes: A practical guide. In E. Froment, J. Kohler, L. Purser & L. Wilson (Eds.), *EUA Bologna Handbook – Making Bologna Work* (Article C 3.4-1). Berlin: Raabe.

Kerres, M., Euler, D., Seufert, S., Hasanbegovic, J. & Voss, B. (2005). *Lehrkompetenz für e-learning-Innovationen in der Hochschule* (SCIL-Arbeitsbericht 6). St. Gallen (CH): Swiss Centre for Innovations in Learning.

Malamed, C. (2011). *The e-learning Coach – Tips and reviews for success with online and mobile learning.* [http://thee-learningcoach.com/e-learning2-0/2011-learning-technology-trends/] July 2011

Nelissen, H. (1978). *Samen werken, samen leren*. Bloemendaal: SOVA [http://w3.tue.nl/fileadmin/stu/ID_s_ME/Feedback_rules.pdf]

Niegemann,H., Domagk,S., Hessel,S., Hein,A., Hupfer,M., Zobel,A. (2008). *Kompendium Multimediales Lernen*. Springer Verlag.Berlin Heidelberg

Rustemeyer, R., Callies, C., Ferdinand, P. & Kutscher, M. (2007). Durchführung von Online-Klausuren mit Standard-E-Learning Werkzeugen. Ausgewählte Evaluationsergebnisse. In A. Kluge & K. Schüler (Hrsg.), *Qualitätssicherung und –entwicklung in der Hochschule: Methoden und Ergebnisse* (S. 49-57). Lengerich: Pabst Science Publ.

Salmon, G. (2002). *E-tivities – The key to active online learning*. London: Kogan Page.

Salmon, G. (2006). [http://www.sddu.leeds.ac.uk/uploaded/learning-teaching-docs/teachtalk/14-2-2006/handoutsGillyFeb06.pdf]

Schmeißer, D.R. & Sauer, H.M. (2003). Mit den Augen der User sehen [Seeing with the user's eyes]. *Planung & Analyse*, 55-60.

Schmitz, F M., Zimmermann, P. G., & Guttormsen Schär, S. (2009). *An initial e-learning ontology as didactic guide for teachers, developers and learners*. Paper presented at the International Conference on Cognition and Exploratory Learning in Digital Age.

[http://www.iadisportal.org/digital-library/an-initial-e-learning-ontology-as-didactic-guide-for-teachers-developers-and-learners]

Steen, J. (2009). *Guideline for writing and using intended learning outcomes for degree programmes at Wageningen University*. Wageningen: Wageningen University and Research Center.

Stockley, D. (2011). *Blended learning or training – definition and explanation* [http://derekstockley.com.au/blended-learning.html]

Susi, T., Johannesson, M. & Backlund, P. (2007). Serious Games – An Overview http://www.autzones.com/din6000/textes/semaine12/SusiEtAl%282005%29.pdf , July 2011.

[1] http://www.enercities.eu/project/

Usoro, A,. & Abid, A. (2008). Conceptualising Quality E-learning in Higher Education. *E–Learning, 5 (1)*, 75-88.

Zakrajsek, T. (2005). *Inspired Students to set and achieve goals which really challenged them*. IDEA PAPER No.1 http://www.theideacenter.org/sites/default/files/Item15Formatted.pdf (July 2011)

7 Annex

7.1 Evaluation

7.1.1 Quality indicator system

The following quality indicator system is the precondition and the basis for the evaluation through questionnaires (next chapter) as well as for the assessment by peers (see 3.2).

Quality factors, dimensions and indicators:

Quality factor (level I)	Quality dimension (level II)	Quality indicator (level III)
Quality of e-learning environment	Quality of technical support	(1) Direct and easy help mechanisms in the case of technical breakdowns
	Quality of content-usability	(2) Suitable amount of information and learning material
		(3) Up-to-date content
		(4) Correct and clear specification of titles in order to facilitate search for documents
	Quality of visual-usability	(5) Clear and easy visual structure of all materials
		(6) Easy availability of all materials – not hidden in a folder without labels
		(7) Visuals/figures to pass information on to the students
	Quality of guidance usability	(8) Easy and clear navigation on the platform (clear and unique labels for files, folders and forums, etc.)
		(9) “Download” opens in a “new window” and course remains on the screen
		(10) Links (e. g. URL, Hypertextuals) are really working
	Quality of technical possibilities of interactions (teacher-students; students-students)	(11) Information about contact persons (e. g. teachers, tutors)
		(12) Easy contact with teachers and tutors
		(13) „Visibility“ of users (photograph, description of biography, hobbies, goals, interests, etc.)
		(14) Easy contact among students
Quality of teacher behaviour	Quality of diversity management	(15) Consideration of different target groups and their different needs
		(16) Suitable handling of diversity in general
	Quality of communicating online	(17) Fixed rules for online communication (e. g. „netiquette“)
		(18) Clear and rather short explanations
		(19) Teachers answer questions reliably
		(20) Teachers check in regularly, at pre-assigned times (and never fail to do so)
		(21) Leading, moderation, and structuring of online-discussions
	Quality of giving feedback	(22) Providing clear and useful written feedback
		(23) Consideration of feedback rules
		(24) Clear announcement and meeting of the dates for feedback
	Quality of motivating students	(25) Students are welcomed in the course by

		a short „Welcome Letter“ or „Welcome Movie“
		(26) Prominent demonstration of the importance of the topics covered in the course
		(27) Students are regularly informed by email about the ongoing discussions, new ideas concerning the topic in question, controversial statements as well as announcements of special events
		(28) Students receive automatically generated emails as soon as another colleague has responded to their post/contribution
		(29) Monitoring of the online-activities of students and specific messages to inactive students
Quality of didactics	Quality of structure	(30) Clear goals for the course
		(31) Clear visualization of course structure (e. g. advanced organizer, course map)
		(32) Course is structured into suitable units
		(33) Clear structuring of the units into unit information, content, activity, „deepings“, and (self-)test
	Quality of online activities	(34) Ensuring activity of students by usage of attractive tasks (e. g. online discussions, group work, challenging individual tasks, etc.)
		(35) Avoidance of unnecessary and pedagogically ungrounded use of tools and applications
		(36) Suitability of tools and applications
		(37) Prevention of students from making a race out of online discussions
		(38) Dedication of online discussion to a clear and single topic
		(39) In the case of chats: Time the chat goes online is fully transparent
		(40) Students‘ individual part of work (e. g. in the case of group work) is visible for the teacher
		(41) Providing a guide (written/visual) what steps are useful in the case of online tasks (default learning path)
		(42) Students are supported in order to avoid confusion and helplessness
	Quality of instructions	(43) Instructions are clear and explained step-by-step
		(44) Instructions are stable over time
		(45) Instructions refer to provided content
		(46) Formal criteria of assignments (e. g. file format, amount of pages, deadline) are clear and transparent to the students
	Quality of „free deeper learning“	(47) Suitable amount of „free“ content
		(48) Clear brief explanations of the purpose of the free materials
		(49) Clear and transparent rules, when independent work of students is desired or acceptable (alternative learning path), and when the “follow the instructions” is strictly required
	Quality of self-test	(50) Questions clearly refer to the content
		(51) Test focuses on the main points
		(52) Immediate feedback of results

	Quality of grading of online-activities	(53) Existence and use of a transparent grading system for online activities of students
Quality of learning	Quality of added value	(54) Added value of e-learning
	Quality of results	(55) Enhancement of competencies in general
		(56) Enhancement of interest
		(57) Enhancement of factual knowledge
		(58) Enhancement of understanding
		(59) Enhancement of applying theories/methods
		(60) Enhancement of team work ability
		(61) Enhancement of self-reliance/self-management
	Quality of suitability	(62) Level of the course
		(63) Preparing for course

7.1.2 Evaluation questionnaires

➔ Global student questionnaire:

Quality factor	Question to the students	Answers by students				
		1 I totally agree	**2**	**3**	**4**	**5** I totally disagree
Quality of e-learning environment	There was clear and speedy help in the case of technical problems	❍	❍	❍	❍	❍
	The course elements and materials were clear and easy arranged on the platform	❍	❍	❍	❍	❍
	The navigation on the platform was simple and logical	❍	❍	❍	❍	❍
	It was very easy to get in contact with the teacher(s)	❍	❍	❍	❍	❍
Quality of teacher behaviour	The teacher responded reliably and comprehensively to the students' questions	❍	❍	❍	❍	❍
	The teacher lead and moderate online discussions (e. g. summarizes regularly important posts/contributions, create new impulses for the discussion, brings the discussion to an end)	❍	❍	❍	❍	❍
	The teacher observed the online activities of students and motivated them by sending encouraging messages	❍	❍	❍	❍	❍
Quality of didactics	The structure of the course topics was clear and well-structured into units	❍	❍	❍	❍	❍
	The online-elements (e. g. online discussions, group work, challenging individual tasks,) were clearly connected to certain goals	❍	❍	❍	❍	❍
	The teacher provided good support and orientation when needed	❍	❍	❍	❍	❍
	The instructions concerning the online-assignments were clear and easy to follow	❍	❍	❍	❍	❍
	The grading of the online activities was clear and transparent	❍	❍	❍	❍	❍
Quality of learning	The e-learning elements made learning more attractive	❍	❍	❍	❍	❍
	The e-learning elements enhanced my competence in this subject area	❍	❍	❍	❍	❍
	The e-learning elements enhanced my self-reliance/self-management	❍	❍	❍	❍	❍

➔ Specific student questionnaire for (1) Quality of e-learning environment:

Question to the students	Answers by students				
	1 I totally agree	**2**	**3**	**4**	**5** I totally disagree
There was clear and speedy help in the case of technical problems	❍	❍	❍	❍	❍
The study material (literature, material, links) was well selected	❍	❍	❍	❍	❍
The content (learning material) on the platform seems to be up to date	❍	❍	❍	❍	❍
It was very easy to find and identify specific documents or files	❍	❍	❍	❍	❍
The course elements and materials were clear and easy arranged on the platform	❍	❍	❍	❍	❍
All materials were visible and easy available	❍	❍	❍	❍	❍
Every central information was visually highlighted	❍	❍	❍	❍	❍
The navigation on the platform was simple and logical	❍	❍	❍	❍	❍
The download of learning material was very user-friendly	❍	❍	❍	❍	❍
The used links (e. g. links to documents or to external websites) worked very well	❍	❍	❍	❍	❍
It was totally clear who are the relevant contact persons (teachers, tutors)	❍	❍	❍	❍	❍
It was very easy to get in contact with the teacher(s)	❍	❍	❍	❍	❍

It was easy to learn something about the other participants	❍	❍	❍	❍	❍
The course contained enough elements which facilitated direct communication between the students	❍	❍	❍	❍	❍

➔ Specific student questionnaire for (2) Quality of Teacher behaviour:

Question to the students	Answers by students				
	1 I totally agree	**2**	**3**	**4**	**5** I totally disagree
The materials provided in this course were well-adapted for the student´s needs	❍	❍	❍	❍	❍
The teacher(s) considered and managed different preconditions of the students (e. g. culture, different approaches to a topic)	❍	❍	❍	❍	❍
There were clear and fixed rules for the online communication	❍	❍	❍	❍	❍
The teacher gave clear and comprehensive explanations online	❍	❍	❍	❍	❍
The teacher responded reliably and comprehensively to the students' questions	❍	❍	❍	❍	❍
The teacher was frequently on the platform	❍	❍	❍	❍	❍
The teacher lead and moderate online discussions (e. g. summarizes regularly important posts/contributions, create new impulses for the discussion, brings the discussion to an end)	❍	❍	❍	❍	❍
The teacher(s) provided clear and useful written feedback	❍	❍	❍	❍	❍
The time for getting feedback was always clear announced and met	❍	❍	❍	❍	❍
I was warmly welcomed in the course (e. g. by a short welcome letter or welcome movie)	❍	❍	❍	❍	❍
The importance of the course topics were clearly stated	❍	❍	❍	❍	❍
I was regularly informed about developments on the platform (e. g. the ongoing discussions, new ideas concerning the topic in question, controversial statements)	❍	❍	❍	❍	❍
I was informed when other students have responded to my postings/contributions in discussions	❍	❍	❍	❍	❍
The teacher observed the online activities of students and motivated them by sending encouraging messages	❍	❍	❍	❍	❍
The materials provided in this course were well-adapted for the student´s needs	❍	❍	❍	❍	❍

➔ Specific student questionnaire for (3) Quality of didactics:

Question to the students	Answers by students				
	1 I totally agree	**2**	**3**	**4**	**5** I totally disagree
The goals of the course (“learning outcomes”) were clear and transparent	❍	❍	❍	❍	❍
The structure and timeline of the course were clearly visualized online	❍	❍	❍	❍	❍
The structure of the course topics was clear and well-structured into units	❍	❍	❍	❍	❍
Each unit was clearly organized by a comprehensive and repeated structure	❍	❍	❍	❍	❍
The course design ensures activities of the students	❍	❍	❍	❍	❍
The online-elements (e. g. online discussions, group work, challenging individual tasks,) were clearly connected to certain goals	❍	❍	❍	❍	❍
Online discussions were like “races” among the students	❍	❍	❍	❍	❍
Each online discussions was dedicated to a clearly defined single topic	❍	❍	❍	❍	❍
Especially chats: It was fully transparent when a chat went online (start and end)	❍	❍	❍	❍	❍
Especially group work: I had to make my individual part of work visible for	❍	❍	❍	❍	❍

the teacher					
Especially online tasks: There were helpful small guides (e. g. written or visual) what steps are relevant	❍	❍	❍	❍	❍
The teacher provided good support and orientation when needed	❍	❍	❍	❍	❍
The instructions concerning the online-assignments were clear and easy to follow	❍	❍	❍	❍	❍
Sometimes instructions were suddenly changed	❍	❍	❍	❍	❍
The instructions clearly referred to provided materials	❍	❍	❍	❍	❍
Formal criteria for specific tasks (like required file format) were clearly given and explained Deadlines for online tasks were clearly given and explained	❍	❍	❍	❍	❍
There was a suitable amount of additional material (“free content”) which was not necessary for the tasks, but made deeper learning driven by interest possible	❍	❍	❍	❍	❍
The purpose of the “free content” was clearly explained	❍	❍	❍	❍	❍
There were clear and transparent rules, when independent work was accepted, and when the “follow the instructions” was strictly required	❍	❍	❍	❍	❍
The questions of the self-test clearly referred to the relevant materials	❍	❍	❍	❍	❍
I received immediate feedback on results when I used the self-test	❍	❍	❍	❍	❍
The grading of the online activities was clear and transparent	❍	❍	❍	❍	❍
The goals of the course (“learning outcomes) were clear and transparent	❍	❍	❍	❍	❍
The structure and timeline of the course were clearly visualized online	❍	❍	❍	❍	❍

➔ Specific student questionnaire for (4) Quality of learning:

Question to the students	Answers by students				
	1 I totally agree	**2**	**3**	**4**	**5** I totally disagree
The e-learning elements made learning more attractive	❍	❍	❍	❍	❍
The e-learning elements enhanced my competence in this subject area	❍	❍	❍	❍	❍
The e-learning elements enhanced my interest in this subject area	❍	❍	❍	❍	❍
The e-learning elements enhanced my factual knowledge in this subject area	❍	❍	❍	❍	❍
The e-learning elements enhanced my understanding of real problems in this subject area	❍	❍	❍	❍	❍
The e-learning elements enhanced my understanding of real problems in this subject area	❍	❍	❍	❍	❍
The e-learning elements enhanced my ability to work together in a (heterogeneous) team	❍	❍	❍	❍	❍
The e-learning elements enhanced my self-reliance/self-management	❍	❍	❍	❍	❍
In the case of combined e-learning and later face-to-face teaching: The e-learning part helped me very well in preparing for the later face-to-face sessions	❍	❍	❍	❍	❍
The level of the required e-learning activities was …	❍ Clearly too low	❍	❍	❍	❍ Clearly too high


Euroleague
FOR LIFE SCIENCES