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**E-learning – A challenge for teachers, their expertise and the innovative capacity of a university**

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Successfully implementing e-learning at universities means promoting the acceptance and expertise of both teachers and students through suitable measures.

The lecture describes the challenges in teaching as well as for the teachers and the university when introducing NEW media.

**1 Establishment of an organisational structure for the implementation of NEW media at a university**

The following deliberations essentially concern a university service concept.

The aim of my deliberations is to illustrate a way of successfully integrating the organisation of an e-learning platform into the infrastructure of a university on a lasting basis. Lasting and sustainable primarily refer to the use of the e-learning platform by the teachers and students of the university.

Experience shows that multimedia projects often end without having caused a didactic reform in the preparation and transmission of teaching content. From the view of an attendance-based university, i.e. from the view of the capital invested in computers, software, staff, etc., sustainability is defined by an increased quality in teaching and study, improved learning success amongst the students and increased success rates in terms of qualifications and not least by increased skills amongst university teachers in dealing with multimedia.

Professionalism of the agents and the quality of the media products is essentially determined by the skills of the persons involved, their team spirit and their integration into the university structure or organisation.

Without doubt the running of an e-learning project, i.e. the preparation and implementation of teaching and study content is a complex project and demands the widest range of skills; this justifies its organisation within a service centre at a university.

Experience shows that service centres – otherwise known as competence centres – are a prerequisite for the sustainable safeguarding of media expertise, i.e. the treatment and implementation of e-teaching/e-learning contents. This guarantees permanent and lasting success for an e-learning platform.

## **2 Didactic preparation of e-teaching materials**

Training of the teaching staff (lecturers/professors) in the use of NEW media technology, including the training of employees/assistants to prepare teaching materials (drafting and provision of online materials), will be regarded as mandatory in the future. At an attendance-based university the students and staff are the prime focus of any investment by the university management or the responsible university committees. The aim here is to secure the university's survival on the "market", and this is determined by the reputation of the university and hence the public recognition of teaching and research.

This turns the question to the actors who determine a university's reputation, namely the teachers at the higher education establishment. It thus becomes clear that if an e-learning platform is set up, e-teaching and e-learning units are developed or an e-learning community is established without the inclusion of university teachers, it will have no lasting character. Accordingly, a change in the teaching at attendance-based universities is also closely linked with the skills of university teachers in using multimedia techniques to prepare e-teaching materials. When developing e-learning concepts, we are not concerned with the ability to have detailed didactic-methodological and multimedia skills. However, one skill that should be acquired is the ability to make decisions on which didactic-methodological models and techniques (methods of structuring) are to be used in designing and preparing the subject matter of the department for presentation on an e-learning platform. This decision should be made in an informed selection process with support from competent advisors. New media such as e-learning platforms offer various forms of digitally processing study contents, such as through the use of videos, animations, interactive tests, FAQs, MC tests, wikis, etc. In this context, the lecture makes reference to the preparation and didactic treatment of teaching materials/contents for the subject of "Standardisation in companies and markets".

## **3 Development of didactic teaching/learning scenarios in the use of NEW media**

Training of teaching staff (lecturers/professors) in the use of techniques for NEW media is illustrated by various usage scenarios, including, for example the provision of teaching materials/content, the use/management of online supervision (asynchronously via forums or synchronously via chats), virtual classrooms, mobile learning, etc.

This raises the question of organising the acquisition of skills needed to establish an e-teaching and e-learning culture at an attendance-based university.

Skills are represented by staff who perform their tasks with a high level of identification. An essential part of this identification is determined by the self-determination of the employees, i.e. their own responsibility and level of independent organisation in their work while at the same time bearing the responsibility for the success of the measures implemented.

This raises the questions as to who is best placed in terms of skills to assess the success of a particular measure, i.e. the development and provision of an e-teaching/e-study unit, and hence justify having made the investment.

In a first step it will be the students and their success in their studies, in the second step the university teaching staff. Including the latter in the development of any e-learning concept is a requirement for successful action.

The skills of the teachers in imparting knowledge cannot be left out of consideration. Only with their experience will it be possible to recognise the barriers in the process of transferring knowledge and to counter them with multimedia techniques.

In this process, training in handling new media should be at the forefront of any educational measures for teaching staff and students in universities. New media offer a host of e-teaching/e-learning scenarios that can be developed individually according to the teaching contents, such as maths, physics, standardisation, etc. Various didactic models can be employed depending on the teaching contents. Examples that may be mentioned include learning-objective-oriented didactics, performance-oriented didactics, etc. Recent investigations show that e-learning and, above all in this context, blended learning are at the focus of applications in universities.

E-learning is defined as all forms of electronically supported learning and teaching that aim to effect the construction of knowledge with reference to individual experience, practice and knowledge of the learner. Information and communication systems, whether networked or not, serve as specific media to implement the learning process (cf. Tavangarian et al. 2004). Blended Learning refers to a mixing of different learning environments. A blended learning approach can combine face-to-face instruction with computer-mediated instruction (cf. Graham 2005).

Providing university teachers selectively within the scope of project agreements with competence and hence personal resources for a limited period is a promising option in terms of university policy and organisation for implementing e-teaching and e-learning units in university departments and hence at an attendance-based university.

A university service concept, i.e. the organisation of skills for setting up an e-teaching and e-learning platform at an attendance-based university, should therefore be incorporated in the form of a matrix organisation while at the same time organising project management and allocating subject responsibility in the project to the departments that have joined the e-learning project.

The strategy for integrating an e-learning platform at universities is the responsibility of the management and the university committees. The task of the committees and management of a university is to combine systems of objectives and values and shape them into a successful whole.

One component of this system of objectives should be to establish a multimedia teaching and learning structure at universities. Only when this objective has been adopted will there be a chance for the successful and permanent organisational integration of an e-learning platform into the infrastructure of a university.

The development of an e-learning platform represents a strategic potential. The aim is, through the formation of skills, to set up a lasting and sustainable infrastructure in the e-learning sector at our universities and thus guarantee participation in the scientific community within a global Internet world.

#### **4 Requirements on teaching staff and students resulting from new media**

The lecture gives an appraisal of e-learning and the associated challenges for the teaching staff and students at universities.

Future developments in the use of media are heavily influenced by the media affinity of younger professors, who – as experience shows – make greater use of online communications tools, and by the pressure of demand from students accustomed to such media.

In contrast to this statement, investigations such as those by Schulmeister in 2009 show in particular that e-learning platforms are only used by up to approx. 50% of students and podcast lectures by only approx. 36%. However, here it is important to point out that entertainment media such as music, photos, films, videos, etc. are more commonly used than participatory media such as weblogs, audio podcasts, interactive games, etc.

Surprising results came in response to questions concerning online learning materials such as discussions in forums, online tests, contact by chat, online group work or interactive exercises. It came as a complete surprise that only a few students (10% to 22%) are familiar with or have made use of the teaching materials available online.

“What the young people of today actually do with the computer is as follows: they work a great deal but for purposes of communication. It is therefore an additional tool with the principal function of communication.”

"95 per cent of American students are on Facebook. 80 to 90 per cent in Germany are on StudiVZ. Wikipedia and the like are also used, except that everything else that distinguishes Web 2.0 – namely interactive working within a network and the cooperative elements – are used by a maximum of 5-10 per cent of young people. This includes contributions to Wikipedia, actively maintaining weblogs" (Schulmeister 2009).

Mobility is an additional aspect, although this is probably not the users' objective. The objective that is actually being strived for is to have entertainment, information and services available when one is not otherwise occupied, e.g. by listening to music or news or shortening waiting times through e-mail. Summarising the analysis reveals firstly that

students can be assumed to have skills in dealing with communication tools but that deficits exist in more complex applications for new media such as e-learning tools or Web 2.0 applications.

The use of e-learning 2.0 and Web 2.0 is to some extent already reality, albeit not in the daily routine of university teaching. University teaching staff are confronted with this situation to the same extent as students. This therefore raises the urgent question of skills among teaching staff in handling new media.

University teaching staff need media skills to exploit the new media for designing their own work processes, for preparing tuition, for supporting research activities, etc. They also need knowledge in media didactics that describes the use of information and communication technologies as teaching and learning resources.

Accordingly, teaching staff have to decide whether and how they deploy the various media available. At the level of an individual study unit, it is necessary to decide whether and which media are used for (re)presenting knowledge, conveying knowledge or as a tool for knowledge design as well as an instrument for communicating knowledge.

Whether university teaching staff (have to) independently develop their multimedia components for their own teaching engagements depends on whether they have the time, willingness, ability, motivation and interest to do so and also on what available resources they have as support. This support within the university is one of the key factors that determine which technical skills, university teaching staff have to acquire themselves in order to be able to employ new media in their teaching and which skills have to come from other sources, such as the media centre, in the form of service provision.

The implementation of new media represents a strategic potential for universities. The aim is, through the formation of skills, to create a culture of teaching/learning through which it will be possible to set up a lasting and sustainable infrastructure in the e-learning sector at our universities and thus guarantee participation in the scientific community within a global Internet world.

**References: Excerpts from the following reference form a part of this article.**

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### **Media skills in the use of LMS for teaching staff**

**What is commonly understood by e-competence refers to the following abilities:**

- Structure and design of a website
- Use of a file exchange platform
- Use of a Learning Management Systems [with or without chat, forums and whiteboard]
- Use of a virtual classroom [with or without audio and video conferencing]
- Handling metadata and technical standards (IMS, SCORM)

However, an introduction to software systems (LMS) such as this is not sufficient for success in e-learning. The pure software training should be supplemented by general didactic qualifications. It is not necessary to master all of them, but merely to select them according to the specific scenario:

- didactic design of self-learning materials
- feedback design for asynchronous learning processes
- didactic use of blended learning
- chairing of groups (asynchronous and synchronous)
- tutorial counselling for contents, exercises and learning processes.

### **Media skill for students**

Hesse et al. define the following in a very general form as components of media skills:

- self-regulated procedure
- interactive work
- cooperative work
- self-designed learning
- orientation and navigation
- information search
- social skills in virtual groups