# ICTeacher

## ICT competencies and pedagogical application skills for teachers


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# 1. The ICTeacher project

**The ICTeacher project builds on several national and international studies regarding teacher's ICT skills. These studies identify a need for continuing education especially for the group of teachers that have been in service for more than 20 years. It is well known that this group of teachers make little use of ICT (Information and Communication Technologies) for their teaching activities, preferring to use traditional methods. This attitude prevents teachers recognising the potential the new ICT-Skills have for the teaching and learning process.**

## 1.1 Initial situation

*Bundesarchiv, Bild 183-S94777 / Paalzow, Günther / CC-BY-SA*

Although much effort has been put on the integration of ICT in European-education-systems, and most of member states have successfully increased the density of technological equipment provided in schools, there is still a gap of integration of ICT in the classes. In addition available technology and tools of ICT are rapidly changing requiring all teachers to regularly update their knowledge and competencies.

Various investigations in Europe show that the present ICT knowledge and practice of teachers is still unsatisfactory and shows the evidence for ICTeacher. Teachers need a set of up-to-date competencies as well as an appropriate attitude to ICT-supported teaching for several reasons, such as reaching a high level efficiency in their daily preparatory and administrative work, guiding their pupils in using ICT as standard facilitating tool in working life and in the "information society"; and for designing up-to-date, attractive and effective IT-based lessons to their pupils.

## 1.2 Aims

The project aims at promoting the use of ICT in primary and secondary school classes.

The quality of teaching and learning will be improved, and the job opportunities of teachers will be increased by:

- raising awareness for the need and advantages of adequate implementation of ICT elements in school lessons;
- strengthening teachers' basic ICT competencies;

- the development of a course designed to deliver the acquisition of ICT competencies for the pedagogical practice.

## 1.3 Activities

The project has several phases:

- Detailed research and analysis of state of the art ICT integration in school education and specific training needs of school teachers.
- Establishing national focus groups with head teachers, teachers' training bodies and supervisory school authorities; involving them as an advisory and monitoring institution for the project.
- Development of syllabus and tests.
- Development of a blended learning training programme.
- Development of a virtual platform with e-Learning environment, specific information and communication tools for the learners and the focus groups.
- Piloting and evaluation of the course in 5 partner countries (Austria, Spain, United Kingdom, Hungary and Denmark);

Incorporation into each of the five European countries education system by:

- Cooperation with ECDL accreditation organisations in the partner countries;
- Accreditation as an ECDL (European Computer Driving Licence) foundation endorsed product;
- Information campaign in the partner countries;
- International dissemination conference;
- Inclusion of the course as a module in vocational teacher training programme at University of Santiago de Compostela.

## 1.4 ICTeacher offers

The main product of ICTeacher is a blended learning training course consisting of three main parts:

- Assessment of existing competencies and identification of training needs
- Provision of basic ICT knowledge and skills.
- ICTeacher blended learning course consisting of five modules.

The ICTeacher programme will be developed in cooperation with ECDL (European Computer Driving Licence) accreditation organisations in the partner countries. The ICTeacher programme is committed to achieving accreditation as ECDL foundation endorsed project.

## 1.5 The target group

The final beneficiaries of ICTeacher are primary and secondary school teachers of all subjects.

The ICTeacher project partners have identified six direct target groups:

- Primary and secondary school teachers, especially those in the ages of 40+

- Prospective primary and secondary school teachers, teacher students
- Head teachers and IT administrators of primary and secondary schools
- Teacher education bodies, especially those that offer further vocation training
- Teacher education experts
- Supervisory school authorities and decision makers

## 1.6 The Project Consortium

The ICTeacher offer has been developed by a multinational consortium of experts.

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# 2. The ICTeacher training course

**Within the ICTeacher programme teachers can acquire new as well as enhance their existing competences in the use of ICT in teaching and learning. Participants learn a wide range of didactical models and available teaching and learning materials to develop the range of their existing teaching methodologies.**

## 2.1 Course structure

The course consists of:

- **A competence assessment tool** (self-evaluation test) that supports the ICTeacher-participant in identifying individual ICT-basic-training needs and the selecting appropriate parts of the ICTeacher-basic-training should this be needed.
- **The ICTeacher-basic-training (ICTeacher-Start):** For those, who have no or very basic ICT skills, A 9 hours face-to-face ICT basic skills training programmed is available. The content of this training has been developed based on competences which were defined by a survey of teachers on which skills are most important for teachers.
- **The ICTeacher course** is the main output of the project. It is a 200 hours blended learning course (15 % face-to-face, 85 % e-Learning) qualifying primary and secondary school teachers and prospective teachers for appropriate integration of ICT in their classes and teaching management.

## 2.2 Methodology basics

The ICTeacher course is based on the concept of self-managed learning.

Its main parts are:

- An extensive competence catalogue (learning objectives catalogue)
- A task collection to support the development of certain competences
- A graded information background (context texts, background analyses, tools, World Wide Web examples, multimedia materials)

This structure forms a self-managed learning environment where the participants can determine the pace and order of their own knowledge management. The inclusion of participant's own personal knowledge and the cooperative knowledge management among participants is seen as an essential part of the project.

## 2.3 ICTeacher course-process

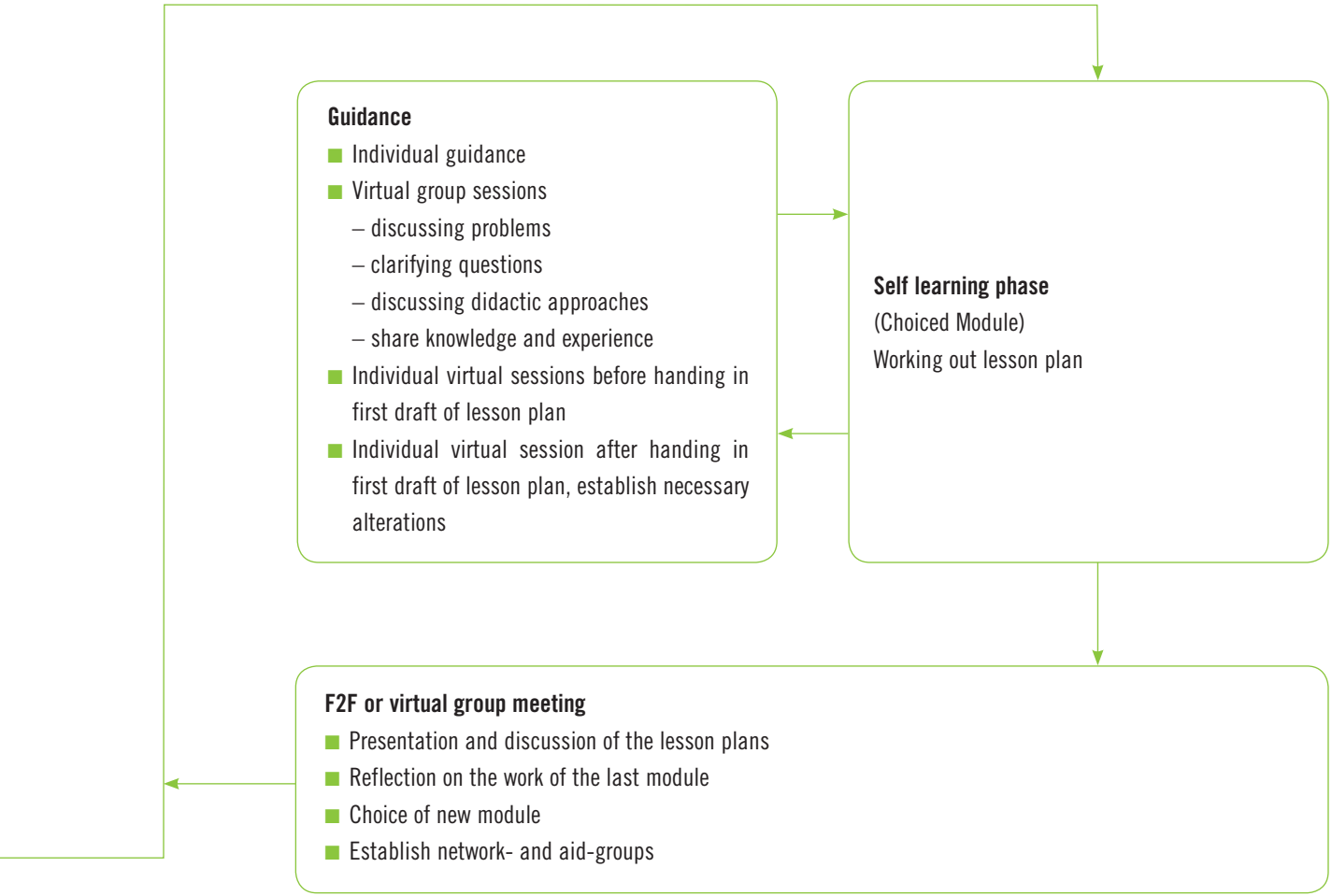
**1st F2F or virtual group meeting**

- Introduction into the ICTeacher project
- Setting of the course
- Explanation of the self-assessment and of ICTeacher-Start
- Self assessment competence test
- Decisions about ICTeacher-Start

**ICTeacher basic training**
"ICTeacher-Start"
(3 face-to-face or virtual group sessions)

**2nd F2F or virtual group meeting**

- Introduction to the learning platform
- Laying down rules and expectations, presentation and questions concerning modules. Choices to be made.
- Communication options:
  - Plan for virtual group sessions (1 every 2 weeks), agendas for each described in general terms;
  - Discussion of use of forums – expectations, trainer's role;
  - Discussion and agreements on individual guidance sessions
- Choice of the module
- Students are told to read through the chosen module before their first virtual module group session with the trainer
- Establish network- and aid-groups


Guidance
Individual guidance
Virtual group sessions
– discussing problems
– clarifying questions
– discussing didactic approaches
– share knowledge and experience
Individual virtual sessions before handing in first draft of lesson plan
Individual virtual session after handing in first draft of lesson plan, establish necessary alterations
Self learning phase
(Choiced Module)
Working out lesson plan
F2F or virtual group meeting
Presentation and discussion of the lesson plans
Reflection on the work of the last module
Choice of new module
Establish network- and aid-groups

## 2.4 The competence assessment tool

The competence test is a self-evaluation assessment tool that supports and helps the learner identify their individual training needs or topics. Learners can then decide if they need to select appropriate parts of the ICTeacher basic course (ICTeacher-Start.

The participants are evaluated on their basic ICT vocabulary and how to work with the tools and programmes they need to handle an eLearning platform and to work out the tasks of the ICTeacher course.

The topics that are covered include:

- The computer and its equipment
- How to use a computer and File Management
- Word processing
- Presentation
- Web browsing
- E-Mail

Depending on the outcomes of the self-evaluation, the participants can select some or all of the ICTeacher-Start modules. If they have no basic training needs they can skip the ICTeacher-Start.

## 2.5 The ICTeacher-basic-training (ICTeacher-Start)

The ICTeacher-basic-training (ICTeacher-Start) is a nine hours face-to-face offer consisting of four parts:

- Using the computer and managing files
- Word processing
- Slide-based presentations
- Web browsing and E-Mail

## 2.6 The ICTeacher blended learning course

The ICTeacher course is the centrepiece of the ICTeacher project and consists of five modules (scenarios):

- Communication and Networking
- Criticism and Reflection
- Digital Content
- Gamebased / Playbased Learning
- Mobile Learning

## 2.6.1 Scenario: Communication and Networking

Museum für Kommunikation in Berlin (Manfred Brückels)

**This scenario seeks to help teachers make effective use of information- and communications-technology to enhance the interaction in the learning process (teacher-students, student-student).**

**ICT provides a wide range of communications tools that can aid the learning process in group work and in general in all educative interactive dynamics. Resources such as communication synchronous and not-synchronous tools and social networks offer easy resources to support collaborative methods and educative interaction.**

**This Scenario covers the use of more adequate communication tools to create interactive situations and monitoring of group and online assessment. The module provide a solid grounding in the tools, techniques, issues and problem solving abilities of the latest generation of social communication tools.**

To use the Internet, to communicate and to build and maintain networks for teaching and learning

**The goals of this scenario:**

The participants should be able to

- Set up network communication environments that encourage interaction and teamwork
  - Reflect on the benefits and the disadvantages of virtual communication
  - Select suitable communication tools depending on every educational activity
  - Create protocols for communication tools educative uses (communication norms and participants roles)
- Use available communication tools to establish communication dynamics, team-work and inclusion
  - Organize and support online discussions
  - Organize online collaborative activities
  - Encourage knowledge sharing in virtual communicative scenarios
  - Monitor students' collaboration in an e-learning environment
  - Develop appropriate e-evaluation techniques for an online group context

**Themes which are discussed in this scenario:**

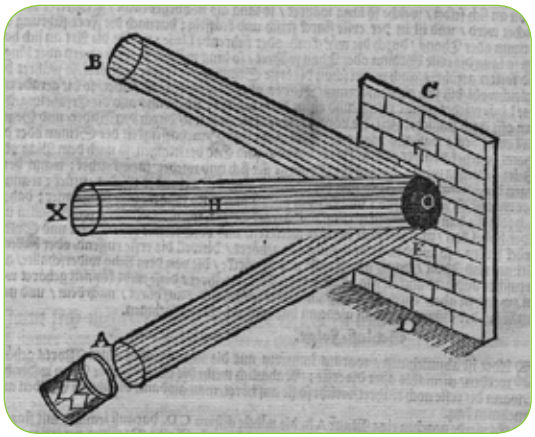
- Characteristics of virtual communication
- Teachers as E-Moderators

- Working collaboratively
- Young People and Social Networking Sites
- Cyber Bullying and Netiquette

**Tools which are presented in this scenario:**

- Blog
- Wiki
- Internet Forum
- Chat
- Social Networks

## 2.6.2 Scenario: Criticism and Reflection




Deutsche Fotothek (Athanasius Kirchler & Tobias Nislen)

**Frequently we are asked to accept that Internet technology embraces and enhances all our lives. However, the reality is that not everyone is either connected to or has direct involvement with the emerging technologies.**
**This module seeks to investigate the social and ethical issues associated with ICT. It does so by examining the digital divide and the role of ICT in political participation The will lead to the creation of teaching sessions that will challenge a number of generally accepted views about the relationship between ICT and society.**

Computer and Internet use in everyday life and activity

**The goals of this scenario:**

The participants should be able to:

- Identify those factors that influence access to and use of ICT
- Reflect upon the benefits and disadvantages of using ICT in political elections
- Describe the concept "digital divide" and locate the reasons why it exists
- Describe and critically review the concept of "digital natives".
- Reflect upon the ethical implications of ICT use
- Define and evaluate the benefits of open source software
- Describe a range of non-technical factors that influence the use of ICT

**Themes which are discussed in this scenario:**

- How real is the digital divide?
- How are the aged portrayed on the internet?
- Can ICT encourage involvement in the democratic process?
- How valuable are Web 2.0 tools in bridging the digital divide?
- What contribution can open source group software such as OpenOffice make to the use of ICT?

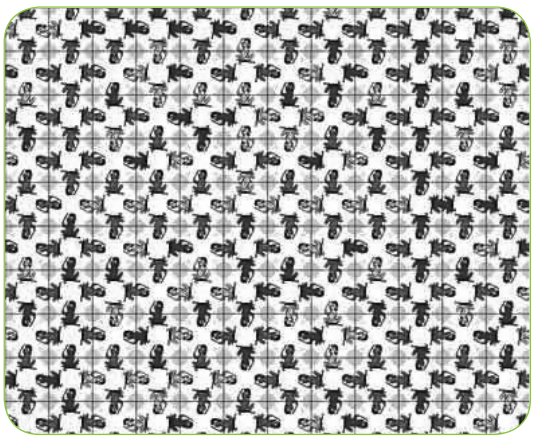
**Tools which are presented in this scenario:**

This scenario does not directly lead to the development of technical skills but calls upon skills learned and used in the scenario "Communication and Networking". Skills and knowl-

edge acquired in other scenarios with the overall programme can also be used:

- Social Networking technologies
- Discussion/ fora tools
- Moderating online discussions
- Online collaboration tools
- Wikis
- Open source programs
- Internet ethics sites

## 2.6.3 Scenario: Digital Content



© Abenteuer Informatik

**This scenario seeks to help teachers to be able to search, design and adapt elearning contents (digital contents resources that support learning) according to didactical criteria (attractive, simple, useful, practicable, motivational, etc.**

Searching, designing and reusing learning objects

**The goals of this scenario:**

The participant should be able to

- Search and select existing elearning contents for teachers:
  - Locate and use banks of digital resources, Learning Objects Repositories and Centers of Resources for teachers avaliables on the Internet
  - Establish and apply criteria for selecting elearning contents.
- Create elearning contents:
  - Know and apply educational criteria for design of quality elearning contents
  - Be aware of the potentials of different digital media (audio, video, Image) and their applications for elearning contents design
  - Create different types of elearning contents (e. g. Conceptual maps, or narrated presentations)

**Themes which are discussed in this scenario:**

- Educational Criteria for design digital materials
- The potential of different media
- The process involved in materials design in education
- How to develop a Multimedia Conceptual Map with CMaptools

**Tools which are presented in this scenario:**

- Educational Software for designing elearning content. E. g.:
  - CMapTools or Exelearning or Wink or JClic or Hotpotatoes

- Banks of digital resources
  - Online resources for teachers of the ministries of education
  - colorvivo
  - corbis
  - freeimages
  - Free music and sounds
  - iconbazaar
  - Microsoft gallery
  - Morguefile
  - Picasa
  - Presentations ETC
  - SXC
  - Web art gallery
  - Flickr
- Learning Objects Repositories and Centers of Resources for teachers
- Copyright
  - Creative commons

## 2.6.4 Scenario: Gamebased / Playbased Learning


**Computer games are a very common way for young people to spend their free time. But people of all age groups spend (a part) of their time playing computer games. A US study for example showed in 2006, that the average gamer is 33. Similar figures can be found in studies all over Europe. So playing computer games is not only a youth phenomenon and not a phenomenon that recently occurred (the first computer/video games have been developed and released in the 1970s).**

**But, what is definitely new is, that there are so many children spending so much of their free time with computer games – and parents, teachers, scientists as well as journalists are concerned about the consequences of this development. Most of the time negative consequences like violent behaviour and the loss of social competences are feared. But there are also efforts being done in making use of the fascination and attraction computer games have for children in teaching and learning.**

**This module deals with computer gaming culture, media education concerning computer games and the integration of computer games into teaching and learning.**

Computer games and education – Using games in the student's learning process

**The goals of this scenario:**

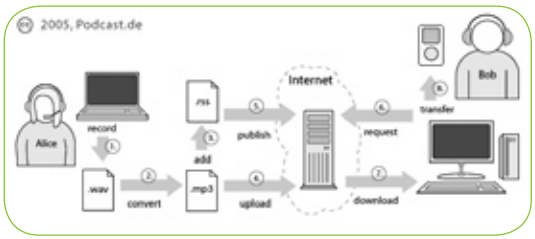
The participants should be able to

- Evaluate the game using of the students
- Provide an overview of different kinds of computer games and their learning aspects
- Choose a relevant computer game for use in a teaching/ learning situation
- Choose the right didactical concept for the implementation of gamebased and playbased learning
- Plan a specific lesson plan in which students present their games experiences
- Reflect the national regulations of child-welfare regarding computer games

**Themes which are discussed in this scenario:**

- Why digital games in class?
- Digital Games Based Learning
- Examples for Digital Games Based Learning
- Digital Playbased Learning
- Examples for Digital Playbased Learning
- Quality criteria for digital games

## 2.6.5 Scenario: Mobile Learning

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**Mobile learning is often described as learning that takes place independently of time and place but involving the use of mobile technology.**
**In this instance, learning can be seen as asynchronous as it can take place whenever the learner chooses, at any time of day, but it can also be synchronous if, for instance, direct communication with the teacher is part of the setup. Mobile learning does not necessarily require technology or synchronous two-way communication.**
**In this scenario we base our understanding on the following description of mobile learning:**
**Any sort of learning that happens when the learner is not at a fixed, predetermined location, where the learner takes advantage of the learning opportunities offered by mobile technologies – but not necessarily technologies that support synchronous communication.**

Mobile devices and learning elsewhere – using mobile devices in students' learning processes

**The goals of this scenario:**
The participants should be able to

- Define "mobile learning".
- Deal with the characteristics and potentials of various forms of mobile devices.
- Choose a relevant mobile device for use in a teaching/learning situation (dependent on the aim of the teaching situation).
- Reflect on choices of mobile devices in different concrete (teaching/learning) situations.
- Reflect on consequences of choosing mobile devices in terms of changes in the planning and teaching/learning processes.

**Themes which are discussed in this scenario:**

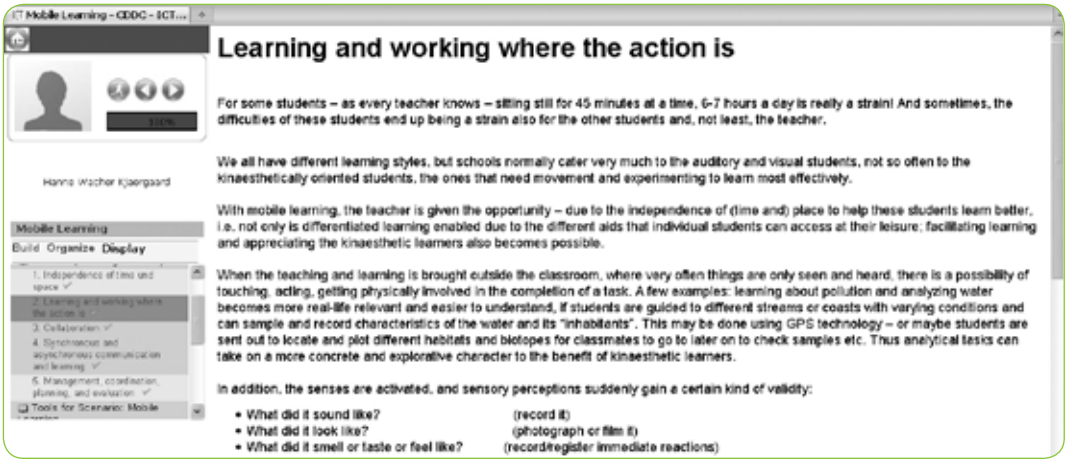
- Independence of time and place
- Learning and working where the action is
  (See also screenshots in chapter "Example of the learning platform")
- Options for collaboration (also at a distance)
- Synchronous/asynchronous communication and learning
- Management, coordination, planning, and evaluation

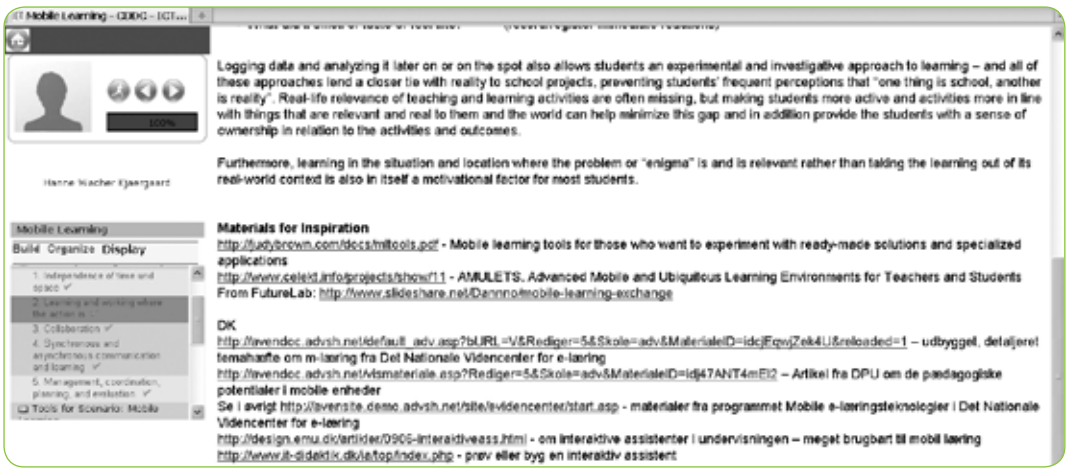
**Tools which are presented in this scenario:**

- PDAs/netbooks
- Smart Phones
- iPods and MP3/MP4 players
- Podcasting/vodcasting
- GPS & GIS
- Data logging equipment

# 3. Example of the learning platform

These are some screenshots of the theme “Learning and working where the action is” of the scenario “Mobile Learning”, taken from the DOKEOS based-eLearning platform:



# 4. The Pilot-phase

The ICTeacher pilot-test took place in all partner-countries between February 8th and April 15th, 2010. The self-assessment-test, the ICTeacher-Start and the ICTeacher blended learning course with all five modules has been tested.
Based on the evaluation of the pilot and of the participant questionnaires the scenario contents and the eLearning platform have been revised to optimally fulfil the requests and wishing of the participants and trainers.

Here are some photos of the Austrian pilot:

# 5. Some experiences of the first ICTeacher participants

I took part in this course to get ideas for my educational work. The course was very interesting and the teacher was very attempted to meet the interests of the participants.

Now I have got the possibility to integrate one or two new ideas of the course into my teaching-work in future.

I applied to the ICTeacher course to broaden my competencies and to get to know about new innovations. It was a very motivating and pleasure-oriented learning.

I realized that it's very important for all teachers to work consequently on an improvement of teaching aids via internet and modern media. And I will do so.

The format of the course is very interesting, and I learned things I did not know before

The contents of the materials have been interesting and easy to understand – it was written in a very clear and concise language

# 6. Future aspects

The project aims at a wider integration of the ICTeacher training in the curriculums of initial and further teacher training. The competencies acquired in ICTeacher training are intended to be implemented as critical elements in teacher education. Some of the ICTeacher project partners will be introducing the training in their curriculums and training offers:

In Spain the University of Santiago de Compostela will offer the ICTeacher training courses and accreditation for Galician teachers as a continuous training.

The teacher training faculty of the University of West Hungary is interested in integrating the ICTeacher course into their training programme.

In Austria *die Berater*® and the Pedagogical Highschool in Vienna are planning to include the ICTeacher course as a permanent feature of its programme for teachers.

An important element of the ICTeacher project exploitation is the aspired accreditation of syllabus and exam tests of ICTeacher as ECDL endorsed products which will provide teachers with a widely recognized certificate.

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