

# Virtual Learning and Training Environments

FEET: Fit for European E-Training is an Erasmus + project No.2015-1-DE02-KA104-002248  
Learning Mobility of Individuals/Adult Education

The aim of this course is the acquisition of new knowledge and skills for becoming effective online trainers (e-trainers) by the training professionals collaborating with E@W. They will study and practice the fundamentals and learn how online training is designed, implemented and evaluated. They will be trained to become e-trainers so they can provide online and blended learning to their learners in Germany and worldwide.

The training course is developed based on the contract between the FEET project coordinator **English at Work GmbH, DE:** E@W [www.englishatwork.com](http://www.englishatwork.com) and **Global Knowledge Development Ltd, UK:** GKD - [www.gkd-online.com](http://www.gkd-online.com)

# A. Theoretical part

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# 1. Introduction to e-Learning / E-training

E-Learning in its contemporary use has different meanings in different contexts and applications. Since it first appeared in the 1960s, E-Learning has been evolving in different ways in the different sectors - the Military, the Education/Training and in the Business. Hence its definition varies according to the field of application. All the sectors were using computers for training in different ways to match the specific objectives and fields of application.

According to Campbell (2004) E-learning:

"...reflects an emphasis on informal and non-formal, just-in-time learning where the emphasis is on

collaborative productivity. Whilst, in higher education settings, best practice online learning emphasizes the development of metacognitive skills, where the emphasis is on reflective and collaborative learning."

Paul Nicholson (2007) argues that:

"In the context of the wider education community, the use of the term E-learning has historically had wider connotations that embrace a diverse range of practices, technologies, and theoretical positions."

So it can be safe to claim that E-Learning includes a broad spectrum of IT-based delivery methods and platforms, uses varied formats and media, games, simulations, Virtual- and Augmented Reality. What unites all these methods and approaches was defined by Patrick Suppes back in 1966 as a "personal individual

tutor" similar to those of the ancient kings in the form of a computer. The reasoning behind employing such an individualized approach is supported by research that one-on-one tutoring brings significant improvement to students' achievement (Bloom, 1984). However, E-Learning should not be confused with the traditional long-distance learning. E-learning is not a lonely self-study process that lacks human interaction. The American Society for Training and Development (ASTD) provided back in 2001 a definition that differentiates e- and long-distance learning:

"E-learning refers to anything delivered, enabled, or mediated by electronic technology for the explicit purpose of learning. This definition excludes things that might fit under the title 'distance learning', but are non-electronic (such as books and paper-based correspondence). It is broader than, but includes, online

learning, Web-based learning, and computer-based training. E-learning includes both one-way and two way learning exchanges, as well as learner-to-learner interaction (as occurs in learning communities)."

What remains to be clarified is that E-Learning refers not only to the learning resources and the digital technologies employed to deliver content. It is an approach to learning and training with its own methodology and andragogy methods.

## 2. E-Learning / Training

The technology, the learning content and the learning design are the three equally important components of e-learning. A successful e-learning process takes place when all the components are of adequate quality and work synergistically. It is also important to remember that E-learning is a complex approach and not just a training method or technique. It makes use of training methods and IT innovations such as knowledge management, performance support and e-coaching, which, when put together assemble an approach that differs from the traditional training and learning. The UK government recognized this trend and the growing importance of involving all relevant stakeholders by renaming its "strategies to E-learning" to "E-strategies

for learning". Motivating all parties included remains a major challenge. In both business and academic settings there are many factors that influence the choice between E-learning and the traditional face-to-face one. Trainers and trainees motivation, media selection/production, goals setting are some of the most crucial of those factors.

There are several widely recognized types of E-learning:

- Web-based training
- Supported online training (blended training)
- Informal E-learning (1, 2, 3 by Martyn Sloman, 2003)
- Live E-learning
- Electronic performance support (4, 5 by Kenneth Fee, 2009)

### The first type - Web-based training

is delivered via internet, intranets and corporate networks. It is the type which is recognized by many experts as being E-learning in its most universally accepted meaning. Here "Content is delivered to the learner without significant interaction or support from trainers, managers or other learners" (Sloman 2003).

### The second type - Supported or Blended training

is a mixture of online and off-line live training. It can be further divided into several subtypes:

- **Sandwich** - training starts and ends with online activities and offline activities in the middle
- **Milestone** - the online training is the main type with milestone live training events at key stages.

- **Knowledge and skill** - online training is used to acquire the baseline knowledge and face-to-face training is used for skill development.
- **Complementary** - online learning resources complement the leading face-to-face training.

### In the third type - Informal E-learning

the E-learning is user-managed and includes learning acquired from colleagues or data banks provided by the employing organization.

### The fourth type is live E-learning

live synchronous sessions where participants from various locations attend virtual lectures and training sessions - webinars.

### The last, fifth type is IT-enabled performance support

It is closely integrated with the workplace tasks, often included into a computerized system or electronic instruction manual.

## 3. Web 2.0 technology in E-Training

Web 2.0 term appeared first in an article by Darcy DiNucci in 1999. Later it was used by Tim O'Reilly at O'Reilly Media conference in 2004. It is used to differentiate the newly emerged trends and second generation of web development tools and design techniques from the existing World Wide Web - now referred as Web 1.0. The original web was an

environment with predominantly few authors and many passive consumers. However, Web 2.0 is considered to be a collection of platforms that allow users to generate, re-use and share content.

### List of most common Web 2.0 tools:

#### Blogs

Initially conceived as a form of personal diary, blogs allow users to easily post text and images online.

Usually a blog post records the date it was published and all posts are accessible via calendar menus. Blogs also can allow visitors to leave comments thus forming follow-up discussions. Blogs are a useful tool to periodically publish materials and keep the audience engaged.

## Forums

Forums are places to exchange ideas and opinions. They are structured as "threads" where there is an initial post and linear or branched-out comments. They are more democratic in their nature compared to blogs since each post has the same "value" as the initial one. Forums can be used for tutor-to-students and students-to-students discussions during or after the training.

## Wikis

Wikis are platforms that allow multiple users to create and edit publications. In contrast to blogs many users can edit the entries, not only the initial authors. Wikis are used to aggregate knowledge and can be utilized in both academic and business environments. Wikis are valuable tool for accumulating learning resources.

## Social networking

These are platforms that allow users to connect with friends, family, colleagues or even with complete strangers. They combine features from blogs and forums - allowing users to share existing information or publish their own materials and react/comment on other users' publications. The social networking platforms automatically "feed" live stream of information generated by the other users directly to the front/home page. Social networking platforms as well as most forums allow users to have one-on-one or group synchronous communication. These types of platforms can be used for keeping in contact with the trainees and delivering news/announcements related to training.

### Synchronous communication tools

This is a type of software that allows free or subscription based real-time audio, video and text communication together with sharing of various types of files. Their features have been included to a certain degree into some social networking platforms, online shops and other websites. When integrated into a learning management system synchronous communication tools enable the implementation of real-time training sessions.

### Multimedia archives

These are websites that allow users to store, share, access and download own and other users' content in the form of audio, video and still images with additional descriptive information. Depending on the settings the entries can be voted for and commented on. These

websites can be used for publishing and sharing multimedia resources related to the training.

### 3D virtual worlds

Virtual worlds are run by proprietary and open source software on dedicated servers and are accessible by specialized browsers, similar to the way web pages are accessed. They offer immersive experience that to an extent emulates real life - users are represented by avatars that can walk, run and execute various actions - sitting, picking objects, activating interactive elements like switching on and off machines and etc. In addition, there are some "bonus" features like flying, teleporting and possessing limitless "backpacks" to store objects and scripts. Virtual worlds offer tools for generating 3D objects, additionally objects designed by specialized

modelling software can also be imported. These worlds offer varied ways of user-to-user interaction - movement, facial expressions and gestures, live chat and audio. The biggest advantage of 3D virtual worlds is that they provide close to real life training experience.

### Online multiplayer games

This type of games enables real-time or near real-time cooperation or competition between individuals or groups of users. Although their educational role is limited they can increase the interest of students towards certain topics.

## 4. Mobile learning

According to the data published by Statcounter in October 2016 the number of webpages accessed via smartphones and tablets exceeded those accessed by PCs for the first time in history. The most recent data of 51,3% starkly compares to the statistical data from 2010 - less than 5% mobile access and from 2013 - less than 25%. The trend is clear and shows that from now on no E-training can afford to ignore the mobile devices as a delivery medium and content-creating technology.

With the ever-increasing screen size, resolution, memory capacity and computing power mobile devices are matching the capabilities of the traditional PCs and can no longer be regarded as additional or supplementary but fully E-learning capable technology. When content

creation is considered, the mobile devices offer some advantages - such as ability to record and publish photos and videos directly without the need for additional tools and software.

Mobile learning was dramatically boosted by the rapid expansion of wireless technology even though in some cases mobile applications can function without internet connection by storing the learning resources in the form of apps.

Being extremely portable, mobile devices can be successfully used as learning-on-demand and just-in-time learning tools. By providing anywhere and anytime learning activities mobile learning offers opportunities for training being directly synchronized to events;

connecting teachers and other learners in real time; collecting live data.

## 5. LMS

To trace the origins of LMS we have to look back to the early 1960s when Don Bitzer at the University of Illinois created a timeshared computer system, used to develop and deliver computer-based training. The system was accessible via high resolution graphics terminals and used a proprietary educational programming language. It allowed users to communicate via electronic notes.

The contemporary learning management systems are able to keep track of the learners progress and provide information on the learning time, route and pace through

the different stages of training. LMS can also provide statistical data on learners age, gender, location, occupation, academic achievements, skills and many more. The larger the involved organization, the more advantages a learning management system can provide, including financial profits. This means that added value of an LMS multiplies with size. Small organizations will have lower return on investment since the development and deployment costs would be spread onto fewer number of students/trainees.

Besides managing the learners, LMS manages the training content - it helps create, organize, store and deliver resources. It also generates statistical data on uptake of courses and completion rates. All resources can be organized into learning blocks (learning objects)

that can be re-used for different courses depending on the training purposes.

The virtual classrooms are based on video conferencing and online meeting software that emulates real-life classroom settings. Students and teachers/trainers from different locations can be present virtually at the same time and have video, audio and text communication as well as share resources and files. The technology makes use of webcams, microphones/speakers and shared screens and is an excellent example of synchronous E-learning experience.

In recent years there is a movement towards personalization of the LMS, allowing learners to organize the learning content, links, tools and further

resources in a way best suited to their learning needs or/and learning style.

An LMS can also include a set of authoring tools. These tools allow anyone without a previous knowledge of programming languages to create and publish learning resources and assessments.

## 6. Additional Resources and References

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Bernhard Ertl / Universität der Bundeswehr München / 2010

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## B. Practical part

### **Presentation:**

How to work with Moodle LMS/VLE and its extensions (plug-ins)

Presenter: GKD ICT expert

Informal discussions with the presenter, Q&As.

### **Practical tasks to be completed:**

Referring to the Theoretical part and using the additional self-directed resources in this section, please complete the following practical tasks:

**1. Do an online research on E-learning.** Try to formulate what in your view are the most important

differences between E-learning in academic and business environments.

**2. What is your understanding** of the tasks of the personal online tutor? List the IT tools that are useful according to you.

**3. List at least 3 key differences** between traditional and E-learning. Compare the list with those of your colleagues.

**4. What are the key factors** that motivate you to use E-learning?

**5. Which of the 5 types of E-learning** can fit into your training practice? Describe which features would fit immediately and which could require adapting your training style.

## Further reading

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