



ADULT LITERACY

Von positiven Lernergebnissen hin zur
aktiven Verantwortung als Bürger

Trainer Toolkit – IKT Methoden

Spannende und unterhaltsame Lehrmethoden

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Lifelong
Learning
Programme

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Trainer's Toolkit – Methods for Joyful Teaching

1 ICT Methods

The aim of ICT-based methods is to enable trainers and learners to use Information and Communication Technologies for teaching and learning purposes. You will find descriptions for the following:

- **eLearning** means learning, training and education with electronic and ICT means
- **Webinar** is short for Web-based seminar
- **Blended Learning** is an approach to combine periods of physical mobility of trainees with distance learning.
- **Augmented Reality** and How to Avoid **Cognitive Loading**



1.1 eLearning

Description

eLearning means learning, training or education by electronic means.

eLearning is based on ICT (Information and Communication Technologies) applications and processes including computer-based learning, web-based learning, virtual classrooms and digital collaboration. Educational technology is crucial to boost the modernization of education and training.

eLearning refers to learning

- with computers and mobile devices (computer, laptop, tablets, smart phones)
- computer-based learning, web-based learning, social networks, as well as local networks
- Using content which is delivered via the internet, intranet/extranet, CD-ROM etc.
- With different types of media to deliver texts, images, audio, video, podcasts, animation, discussion groups, case studies, assignments, quizzes, multiple choice question pools etc.
- which can be supported by software applications (educational games, visualisation, simulation)

E-learning and educational technology can be used both inside and outside the traditional classroom.

Digital technologies for learning lead to new forms of collaborative platforms and online courses such as Massive Open Online Courses (MOOCs) and Open Educational Resources (OERs), collaborative International Learning, webinars etc.

Research and development for eLearning combines often different technologies such as mobile technologies, augmented reality, virtual environments, game-based learning or real-life learning situations.

E-learning is learning supported by information and communication technologies (ICT).

Comments:

- e-learning is not limited to 'digital literacy' (acquiring ICT skills). It may encompass multiple formats and hybrid methods: using software, internet, CD-ROM, online learning or any other electronic or interactive media;
- E-learning can be used as a tool for distance education and training but also to support face-to-face learning.

Source: Cedefop, 2008.

Practical exercises / How did you use it for the adult literacy project?

The innovation and useful aspect for trainers and learners lies in the combined usage of a range of ICT-tools to manage and perform eLearning. In the Adult Literacy project

- we set up Moodle as a Content Management System based eLearning platform
- in Moodle Adult Literacy course spaces have been created for the project and for various languages
- Moodle workshop for trainers and learners in Ponte de Lima, Portugal in August 2014
- Registration to courses and online feedback collection is done with online forms created in Google drive. This is the lesson learned from the London workshop.
- Webinars to create virtual classrooms with the GoToMeeting® tool, Skype or other tools are the ideal tool for trainers to have online trainings.



- Our learners use their smart phones with internet connection during German language classes to look for vocabulary in their languages (Chinese, Arabic, etc.)
- Google, Inc.'s Google Translate bought the Word Lens app for Android, iOS, and Google Glass. If the device's camera is put at text or e.g. street signs, the app will replace the text in the image with a translation. Some of our learners used their smart phones to translate the most important parts of the English training material into Turkish language during the training in Vienna.
- We have also used Google Translate for pronunciation exercises. We added a link in the Moodle Learning Management System so that learners can get to a website where they can not only translate words but also press a loudspeaker button and then listen to the correct pronunciation with the loudspeaker. Pronunciation is one of the most important issues for self-study of learners, especially for beginners.

Lessons we learned / Recommendations

A trainer who uses eLearning must understand that managing an eLearning project is a complex task and requires a combined set of skills: knowledge about eLearning technology tools and standards, general project management and knowledge about learning and teaching using eLearning tools and resources.

For learners the access and usage of the learning resources and tools must be as simple as possible. E-learning should not be implemented for the sake of doing an eLearning project, but to support learner-centred approaches. Learners want an easy access to learning materials and should not be concerned with the handling of the technology instead.

We found the combination of downloadable learning materials from Learning Management Systems (such as Moodle) and the support with webinars by trainers in the learning phases as most effective. The learners first download the training material from the internet. There is a training agenda agreed for webinars with the trainer. One webinar session should not be longer than 1,5 hours. The webinar could be recorded as well for future use.

E-learning enables also learners to be put in contact with others for the exchange of knowledge in discussion forums and creation of partnerships.

*eLearning bedeutet Aus- und Weiterbildung
mit elektronischen und IKT Tools*

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1.2 Webinars

Description

Webinar is short for *Web-based seminar*. Webinars are a form of distance learning using the internet with video conferencing software. The webinar can be a training, workshop, seminar, lecture or presentation etc. Webinars are synchronous courses where the teacher and the students meet online at an agreed time using distance learning tools. It is up to the trainer to decide which media to use.

The students can download the training material before the webinars and print it out. In this way the trainer does not need to share the screen with them. The trainer can share the screen e.g. for selected occasions only to show some additional material and attract the learners' attention.

The webinar is interactive and allows interaction between the trainer and the learners. The webinar is most similar to onsite trainings. It is a key feature of the webinar that students can ask questions. The learners can give immediate feedback about the training programme.

Webinars are different from Webcasts where the instructor can be pre-registered for the students. Webcasts do not allow immediate interaction between the trainer and the learner. Professional webinar tools offer functions for learner management and registration and reporting functions for recording the times when the learners joined the distance learning.

Practical exercises / How did you use it for the adult literacy project?

Webinars have been presented at the project meeting in Portugal in the Moodle workshop for demonstrating how to run Webinars with GoToMeeting® (participants can log into the webinar during the workshop following a link they receive in advance). There are also free tools such as Skype which can be used for webinars.



Lessons we learned / Recommendations

A trainer who uses Webinars must understand the needs of the learners for distance education. Some technical problems are still to overcome, such as muting microphones of participants or user interactions in groups of more learners. A good internet connection is required to have satisfactory quality for webinars.

The learner should not be overloaded with technology and information – we rather focus most of the time during the webinar on the voice of the trainer only – and use additional channels (screen

transmission, other sources) only in selected cases for demonstration. It is also up to the trainer to decide whether he/she switches on the camera constantly. We rather focus on the content on the screen of the presenter, with video transmission of trainer or participants on a limited scale.

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eLearning

1.3 Blended Learning

Description

The EU funding programme Erasmus+ (2014 – 2020) supports the integration of a greater variety of study modes (distance, part-time, modular learning). Blended learning is a study type that involves learning in a combination of modes.

Blended Learning is an approach to combine periods of physical mobility of trainees with distance learning. Often it is used more specifically as an innovative concept to combine face-to-face workshops or seminars with distance learning (such as internet, webinars, television etc). The structure of blended learning courses is built upon a mixture of traditional onsite class room training with ICT-based eLearning courses.

For the distance learning phase, we can distinguish between

- **Platforms** to download learning material, to perform exercises, forums ...
- **Tutorial support** of blended learning courses by the trainer with webinars...

Practical exercises / How did you use it for the adult literacy project?

The usage of blended learning for teaching German language was first of all focussed on classroom teaching. Distance learning is used as an add on to stay in contact with the learners, to exchange learning material with the online platform, to provide them links to free tools for pronunciation exercises and for short eLearning interventions with the tutor.

Practical exercise:

Design a structured course comprising a number of modules. Let's say the course has 11 modules.

1. Upload the training material with all modules and exercises into a Learning Management System (LMS) such as Moodle.
2. Design the course in a way that some modules will be covered in the face-to-face training (e.g. 7 modules). Pick the most important modules and exercises for the onsite course.

3. The remaining modules and exercises will be covered by distance learning using a LMS such as Moodle and webinar sessions with the trainer (e.g. 4 sessions to cover each of the modules, discuss exercises, answer open questions). For the webinars you can use ICT-tools such as Skype, GotoMeeting or others.

Lessons we learned / Recommendations

Blended learning offers immense advantages. The combination of modes allows to keep the onsite presence shorter for the learners and the trainer/teacher. But at the same time the learners benefit from the advantages of traditional classroom teaching and the trainer can create personal contacts with learners and transmit the main principles of the course in the face-to-face training.



If trainings are held in different places across Europe usually the room rental fees are very high. Blended learning helps to limit the cost both for training organisations and also the cost for hotel and stay for international training participants.

We see that the acceptance of blended learning depends also on the target group. Course participants who have higher-skilled jobs find the approach very convincing and they are very proactive in using distance learning resources and webinars.

The usage for language teaching is challenging as some organisations are still rather sceptical about the advantages of using eLearning tools in teaching German language e.g. to migrants. This is also due to the fact that not all learners have regular access to the computer and to the internet.

In case that organisations providing adult literacy skills are skeptical about the benefits of eLearning in general, it is recommended that the implementation of blended learning courses should be based

on small scale trials with selected learners in a first phase to proof the benefits and show that eLearning works for the learner – and not vice versa.

We recommend that single webinar sessions between learners and the trainer should have duration of 1-2 hours, not more. It has shown that learners find about one webinar session with the trainer per week useful.

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CREATIVE TOOLKIT

Blended Learning

1.4 Reduction of Cognitive Loading in Development of 3D Modeling Skills – a step prior to enhancement in Augmented Reality (AR) media

Description

ICT-based learning environments and new technologies such as Augmented Reality offer a great potential and variety to make learning more enjoyable but at the same time the cognitive load imposed on learners can become an issue.

In cognitive psychology, **cognitive load** refers to the total amount of mental effort being used in the working memory. Cognitive load theory was developed out of the study of problem solving by John Sweller in the late 1980s. [1] [2]

Augmented reality (AR) is a live direct or indirect view of a physical, real-world environment whose elements are augmented (or supplemented) by computer-generated sensory input such as sound, video, graphics or GPS data. It is related to a more general concept called mediated reality, in which a view of reality is modified (possibly even diminished rather than augmented) by a computer. As a result, the technology functions by enhancing one's current perception of reality. [3] [4]

Mariano Alcaniz, Manuel Contero, David C. Perez-Lopez and Mario Ortega (2010). Augmented Reality Technology for Education, New Achievements in Technology Education and Development, [5] state

In this sense, **augmented reality** appears as an emerging technology that promises to make "educational immersion" available to practically everyone. Augmented Reality (AR) is a technology that permits to overlay computer graphics onto the real world. Unlike immersive Virtual Reality, AR interfaces allow users to see the real world at the same time as virtual imagery attached to real locations and objects. In an AR interface, the user views the world

through a handheld or head mounted display (HMD) that is either see-through or overlays graphics on video of the surrounding environment. AR interfaces enhance the real world experience, unlike other computer interfaces that draw users away from the real world and onto the screen.

Practical exercises / How did you use it for the adult literacy project?

Workshop in Naples, Italy using AR Playing Cards to teach the Alphabet

Krzysztof Bahrynowski from JPE used Octagon's playing cards in the LLP Grundtvig Adult Literacy workshop in March 2015 in Naples. The smart phone was connected to the video screen and with a special App the smart phone read the content of playing cards, each of them or one letter of the alphabet. A 4D animated animal was shown on the video screen for each letter and the learners repeated the name of the animals together in the training.

In this exercise the cognitive load that affects the learners can be considered as quite low as they joyfully learn together with the trainer which runs the AR applications with his smart phone.

Workshop in London by Joanna Pinewood Education: Introduction of Numeracy and Literacy opportunities in Sketchup and Augmented Reality

Krzysztof Bahrynowski from JPE, London introduced Sketchup and Augmented Reality (AR) tools in the Erasmus+ KA1 staff training in London in December 2014. Sketchup is a computer programme used to create 3-dimensional objects. AR is a growing field of technology where real life is modified and enhanced by computer-generated sights and sounds.



The most common use of AR can be seen through mobile apps. Point your device's camera at something that the app recognizes, and it will generate a 3D animation or video superimposed over whatever is on your camera's screen. The effect makes the computer-generated item appear like it's really there.



During the workshops staff from Skills International GmbH and JPE created 3-dimensional molecules and used the AR to view their Sketchup molecule's models in Augmented Reality with AR-media. All the participants received Sketchup tutorial for beginners well before the meeting to prepare themselves.

Discussion on potential of learning: smart phones/ android apps / laptops, and usefulness of those tools for teaching basic literacy and numeracy. As Krzysztof stated he uses those tools to improve motivation and self-confidence of the adult learners, who can create objects and pictures and learn meaning of icons used in computer applications.

Communication of digital information to adult learners is difficult most times and even in last few days JPE had to overcome new problems. Andragogists have to be not only facilitators but activators.

Krzysztof presented Google drive and tools like survey for effective communication. One barrier is that, to share any docs or survey, the recipients must have Google account as well.

The cognitive load for adult education staff and more generally for learners can become quite high when it comes to learn how to use the technology and Apps as a trainer or staff member of an adult education organisation. Therefore the training method should be adapted as a mixture of formal (guided) training and non-formal experimental approach.



Chemical language in 3D

This purpose of developing clearer steps or instructions in ICT skills for 3D atomic and molecular modeling is to prevent the cognitive learning loading or stress of learners and trainers that cause “word blindness” that prevents acquisition of knowledge. It allows development of the international chemical language.

The brain thinks and dreams images and sounds (visual and audio senses). Persons unable to express themselves in writing often resort to kinesthetic processes like illustration, painting and craft. Through kinesthetic practice ICT skills are acquired. Instructions developed and facilitated such as the above example allow learners to acquire new employable ICT skills with less stress.

Lessons we learned / Recommendations

Augmented Reality and 3D Visualisation tools are very complex and change extremely rapidly. Especially young staff needs transparent learning paths to create output successfully. Although young staff members are usually very experienced with computers and smart phones, it does not necessarily mean that they are used to use the development tools to create own content. If the Flipped Classroom method is applied – where learners get learning assignments prior to the training and use the joint time in class rather for practical implementation – junior staff needs clear instructions and support by experienced staff to create own educational content.



We realized that the educational staff can be best motivated if they either learn to use existing AR applications or if they are guided well to develop new solutions with tools. A good practice example is the project logo for the KA1 project 'FANTASY TO REALITY – From Adult Literacy Skills to Augmented Reality'. First staff from JPE started to create the logo, and in the workshop in London the young staff from Skills International GmbH Austria further adopted.

Andrea Fenz from Skills International GmbH visited the EduDays 2015 at Donau-Universität Krems in Austria. She attended the workshop about Augmented Reality where also AR applications for the 'schoolbook of the future' were discussed. One of her findings was that we have to distinguish whether educational staff and facilitators aim to

- a) use educational resources just as they are offered on the internet or
- b) develop own AR content for education and training.

The skills required by adult education staff and trainers are quite different if we consider both options. Trainers who use existing solutions must be able to find AR applications and use them in the classroom with the tablet, smart phone or computer. Adult education staff and trainers who want to develop own content must know about AR tools and how to use them successfully. The digitalisation of objects with photography and laser is also an actual hot topic together with 3D printers.

We also learned that knowledge about intellectual property rights is an issue which will need more attention in the future both for users and developers of new content.

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