



LIFE LONG @ LEARNING GUIDE

Guide for the Implementation of E-learning



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INTRODUCTION

This guide was created under the framework of the Erasmus+ Project named “LL@L - Life Long at Learning”, with the approval number 2016-1-MK01-KA204-021684 and five partners, from Macedonia: Community Development Institute and Lifelong Learning Center; from France: La Ligue de l’Enseignement; from Spain: Inercia Digital S.L., and from Germany: Volkshochschule Hannover.

This project contributes to the development of Adult Education staff giving them the possibilities to enhance their skills in e-learning and e-learning promotion. The main objective of the project is the promotion of the use of ICT in the adult learning focusing on ICT tools for distance learning, on the basis of exchanging good practices between the partners and in response to the priorities of the Erasmus+ programme, Key Action 2 – Cooperation for innovation and the exchange of good practices, strategic partnership for adult education.

The specific objectives of the project are: enhancing digital integration in learning, teaching, training at various levels: promoting access to and learning through Open Educational Resources (OER); supporting ICT-based teaching, training , as well as ICT-based assessment practices; developing adult educators’ competences to deal with diversified groups of learners, make use of new technologies for better outreach and teaching outcomes; improving and extending the offer of high quality learning opportunities tailored to individual adult learners, including through innovative ways of outreach and delivery.

The main objective of this partnership was to develop an educational guide for a course "Life Long @Learning". The proposed course is based on good distance learning and teaching practices. This guide is the outcome of the combination of methodologies deriving from the multidisciplinary approach of the members of the partnership as well as from the experience gained during the teaching in the participating countries. Following these ideas, the objectives of the guide are:

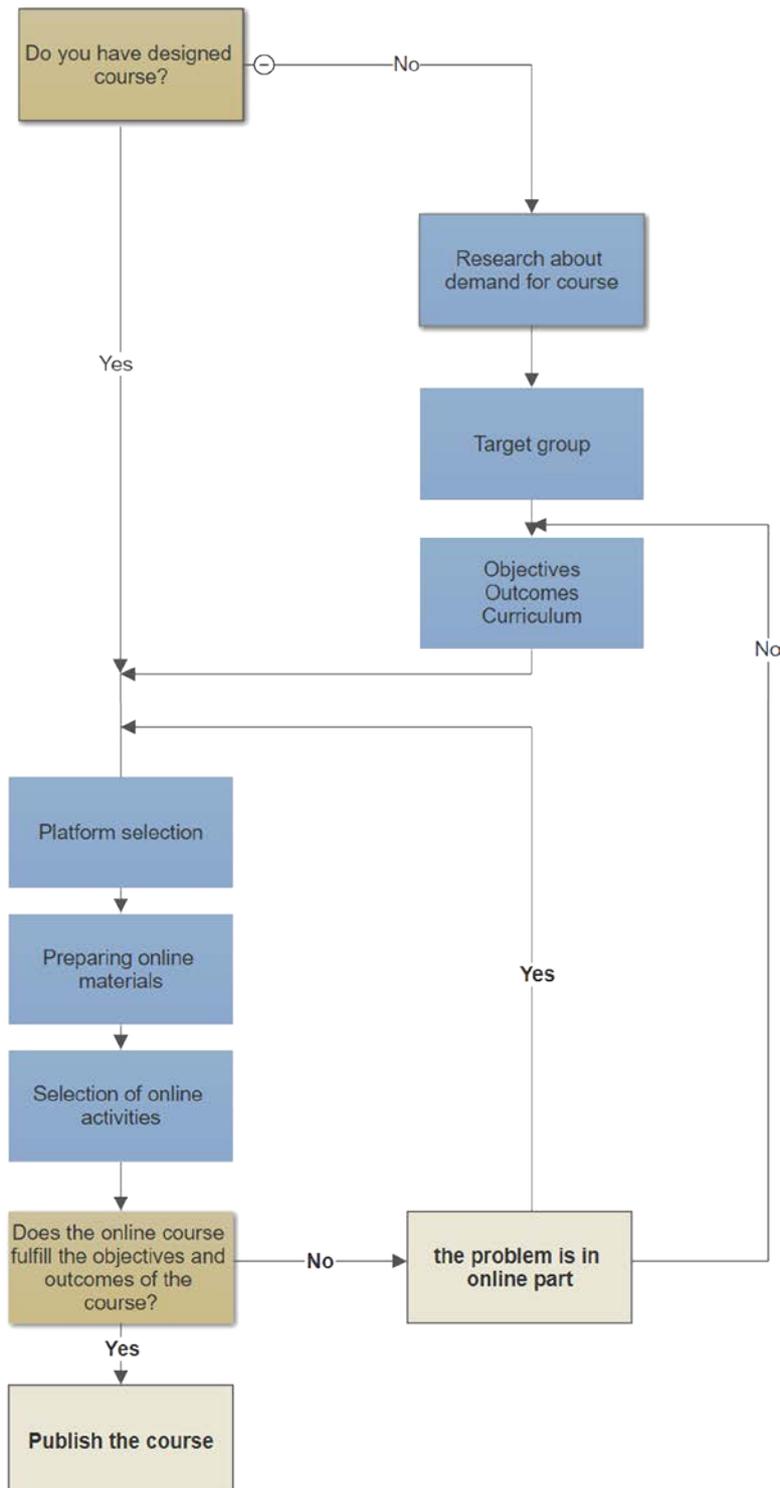
- Developing a new approach to adult education and training which focuses on learning outcomes and learner responsibility and autonomy.
- Encouraging the development of effective lifelong guidance systems, as well as integrated systems for the validation of non-formal and informal learning.
- Ensuring flexible arrangements adapted to different training needs of adults, including in-company training and workplace-based learning.
- Developing mechanisms for ensuring that educational provision better reflects labour market needs and that it provides possibilities for acquiring qualifications and developing new skills that increase people’s capacity to adapt to the new requirements of a changing environment.
- Promoting the acquisition of transversal key competences, such as learning to learn.



- Making better use of ICT in the context of adult learning, as a means of widening access and improving the quality of provision.

The guide presents training material on use of new technologies in the development of a lifelong guidance system and the design of an e-learning approach, as well as tutorial for Moodle and best practices on e-learning.

A brief overview of the process can be summarised with the following decision tree:



I. GUIDANCE SYSTEMS FOR LIFELONG LEARNING

I.1. Description

Lifelong learning is defined as "all learning activity undertaken throughout life, with the aim of improving knowledge, skills and competences within a personal, civic, social and/or employment-related perspective". Therefore, it not only enhances social inclusion, active citizenship, and personal development, but also self-sustainability, as well as competitiveness and employability.

There was and is a common understanding that learning throughout life is essential and possible. Many societies have proverbs like 'learning from the cradle to the grave', or 'learning starts in the womb and ends in the tomb'. Lifelong learning can be found in many ancient civilizations. Such expressions are part of cultural and religious beliefs.

Today lifelong learning has become the leading paradigm for reflections on educational systems and their reform. It guides the most recent (2015) UNESCO report on Rethinking Education. Towards a Global Common Good. The United Nations (UN) has set in the perspective 2030 for the Sustainable Development Goals (SDG) as the overarching goal for education: 'ensure inclusive and equitable quality education and promote lifelong learning opportunities for all'. All areas, sectors and ages are included in the seven targets.

"In essence, UNESCO defines lifelong learning as rooted in the integration of learning and living, covering learning activities for people of all ages (children, young people, adults and the elderly, girls and boys, women and men) in all life-wide contexts (family, school, community, workplace and so on) and through a variety of modalities (formal, non-formal and informal) which together meet a wide range of learning needs and demands. Education systems which promote lifelong learning adopt a holistic and sector-wide approach involving all sub-sectors and levels to ensure the provision of learning opportunities for all individuals."

The European Year of Lifelong Learning in 1996 raised attention and awareness for learning needed throughout life. In 2000, the EU Memorandum on Lifelong Learning called it "A time to take action". It presented six key messages on new basic skills for all, more investment in human resources, innovation in teaching and learning, valuing learning, rethinking guidance and counselling and bringing learning closer to home, followed by an important chapter on mobilizing resources for lifelong learning. The Memorandum, clearly oriented towards a new holistic approach to all education, set the overarching agenda for initiatives in all educational sub-sectors.

We noted the part that social media play in the life and learning of teenagers. We can observe globalization by watching people on public transport, in cafes and on the street, the whole world in their smartphone hand. WWW-based ICT allows new forms of learning in and out of the classroom. Massive open learning systems (MOOCs) may give more high

quality education at lower cost, as fast-rising school and HE numbers move towards mass provision and reach the most remote and disadvantaged minorities.

The learning that new ICT allows in an instant access global information system is not all positive and trouble-free. However, it is undeniably part of what educational planners must take into future quality-raising cost-effective LLL systems, remembering the importance of face-to-face interaction and mentoring and of informal peer group learning in and outside the classroom. We have already noted the place of social media in the formation and informal learning of adolescents, and even those younger as well as older.

Lifelong guidance aims to provide career development support for individuals of all ages, at all career stages.

Guidance in learning

Guidance can play a central role in learning systems by increasing individuals' engagement with learning, making clear the pathways through learning and work, and supporting the acquisition of career management skills (for managing life, learning and work).

- Career guidance in schools can contribute to increasing students' engagement and success in school by clarifying the relevance of subjects to future opportunities, and supporting transitions from school through providing information and skills to underpin good decision-making and helping them to establish successful lives and careers.
- Career guidance in vocational education has an important role to play in supporting individuals to see opportunity and value in vocational options and in helping those in vocational education to make the most of their skills and knowledge.
- Career guidance in higher education can support good career decision-making and effective transitions to the workplace, and can help to ensure that graduates' learning and skills are well used.
- Career guidance in adult education can support adults to consider their return to education, enhance their skills and employability, and help them to utilize these skills effectively in the labour market.

I.2. Lifelong guidance for adult learners

Guidance for work



Guidance plays a critical role in effective labour markets, supporting individuals in transitions to and within the labour market, and helping them to make effective use of their skills and be resilient in the face of change.

- Career guidance is frequently used as a way to engage unemployed adults in the labour market. As such, it forms a key part of active labour market policies. The evidence suggests that, within the bounds of the broader performance of the labour market, career guidance can be effective in re-engaging unemployed people in work.
- There is an emergent literature that suggests that career guidance is important in helping individuals to manage career breaks and periods of caring responsibility.
- Guidance can be useful for young people who have failed to make successful transitions to the labour market. This can be an effective strategy, particularly where it is possible to develop approaches that recognise the diversity of the youth population and that seek to pre-empt and/or to manage failed transitions.
- Guidance for working people can take place within the workplace or outside it. It can benefit both the individual and their employer. A number of key business benefits have been identified, including increasing employee satisfaction and engagement, and supporting knowledge transfer and cohesion.
- Guidance can support the mobility of workers both in the home country and in the host country. It can support people to understand the opportunities and processes of mobility and to re-orientate themselves and become productive once they have moved.
- There is growing interest in the role of guidance with older workers. Guidance can be effective in supporting such workers to engage in learning and actively manage their staged retirement.

II. PREPARATION

II.1 New Requirements of the Labour Market

The skills required to successfully participate in the labour market have changed considerably in the past thirty years. In earlier times, it was sufficient to start the professional career with vocational training or academic training in order to be prepared for the rest of the professional life. Today, professional workers have to deal with the requirements for flexibility, constantly changing qualifications and mobility.

The digitization of the worlds of life requires continuous further education. New fields of work are created, old professions are no longer required. The workplaces often change. In addition to reading, writing and computing, digital and IT skills have now become the fourth key competency in education. Many companies are increasingly using other languages, depending on company philosophy. This leads to an increasing demand for foreign languages.

In the industrial professions, more and more, digital work fields are added. This also requires continuous training and qualification in these areas of activity. As the digitization is overcoming the industrial world in all areas of social life it is reasonable that learning will be carried out in a digital way too. So e-learning plays a more and more important role in the further education. In an online survey in 2011 (MMB Study 2011) 76 experts out of Germany, Suisse and Austria remarked that these new learning methods would be very relevant for the vocational training in future. In a recent publication a study is presented, that 92 per cent of analysed enterprises in Germany use blended-learning in their in-house training (compare: Leimeister et al). These are results of analysis in Germany (Austria and Suisse) but the situation in other industrial countries may be comparable.

The target groups of further education are wide spread. In principle, the need for continuous education and training has increased for all population groups. Besides of general interests in improving skills and competences or special needs in the job we can identify groups with an urgent need of learning and qualification.

As a result of the demographic change in the industrialized countries, the working lives of the employees will be prolonged and the average age will be increased considerably. Older employees must be further qualified for new work fields.

People who have interrupted their careers for personal reasons must be integrated into the working life after a re-entry into the workplace and prepared for the current requirements by appropriate training. In most cases, this affects women who had periods of education.

In Europe there is a large number of immigration, caused by the emergence of crises in Africa, the Middle East and Asia. This results in needs for integration courses, language courses and cultural education.

Low-qualified people are more threatened losing their job in economic crisis than better qualified. Thus also non-educated population groups must be reached by further education.

The advantage of online learning and the reasons for its importance is visible reflecting these target groups: it is easy accessible. People living in different situations wants and need to participate in further education and are not easily able to attend face-to-face courses: Women or men with young children, employees in shift-work, people in responsible jobs who works not only in the regular time, people who live not in urban areas. For those online learning would be a chance.

II.2 Capacity building of adults towards environment adaptation

Improving quality of provision

The educational need requires an individual planning. Many people need to be brought to this area and learn to learn, a high degree of self-organization is required. In addition to training and courses for a particular workplace, more general content is also important: time management, social issues, health and society, political education.

Not all of the above-mentioned areas can be mediated with self-learning measures. An education plan, which is based on individual inclinations and requirements, is necessary. This means that, in addition to multi-media knowledge transfer, face-to-face courses must continue.

A special quality of online learning is exemplary described for the language learning of immigrants in Germany. Linguistic professionals considered that learning German (or Roman language) is very difficult for those who have e.g. Farsi, Arab or Tigrish as mother tongue. So language courses for these target groups need very special offers adapted to the structures of these languages. Online learning provides these special learning methods once they have been developed one time. Each participant can use the specific tool related to his/her mother tongue. The quality of online learning shown in this example is the possible high level of individualized learning (compare: Handke, Jürgen).

Development of new needed skills

The labour market of the future is divided. While the demand for well-trained specialists is increasing in the new work areas, the labour market will break in the less developed "traditional professions". The gap between well-paid workers and workers with low or incorrect qualifications will continue to open. A knowledge society emerges, in which the necessary knowledge work, the artisan work more and more displaces. Qualifications must be acquired in creativity, self-help, and self-organization.

The lifelong employment dies. People's CVs will increasingly be characterized by breaks, interruptions and changes. Lifelong employment in a company will hardly be possible. Employees must acquire the following skills:



- Mobility: willingness to make changes in the place of residence, place of work.
- Flexibility: familiarization with other areas of activity, develop analytical skills for individual life planning.
- Ability to work as a team: Work out skills in teams and working groups.

The EU legislation reacted to this challenge by establishing the European Framework of Key competences. It urges provider of Lifelong Learning to prepare their participants to the above-mentioned challenges of the (future) working reality:

1. Communicating in a mother tongue: ability to express and interpret concepts, thoughts, feelings, facts and opinions both orally and in writing.
2. Communicating in a foreign language: as above, but includes mediation skills (i.e. summarising, paraphrasing, interpreting or translating) and intercultural understanding.
3. Mathematical, scientific and technological competence: sound mastery of numeracy, an understanding of the natural world and an ability to apply knowledge and technology to perceived human needs (such as medicine, transport or communication).
4. Digital competence: confident and critical usage of information and communications technology for work, leisure and communication.
5. Learning to learn: ability to effectively manage one's own learning, either individually or in groups.
6. Social and civic competences: ability to participate effectively and constructively in one's social and working life and engage in active and democratic participation, especially in increasingly diverse societies.
7. Sense of initiative and entrepreneurship: ability to turn ideas into action through creativity, innovation and risk taking as well as ability to plan and manage projects.
8. Cultural awareness and expression: ability to appreciate the creative importance of ideas, experiences and emotions in a range of media such as music, literature and visual and performing arts. (eur-lex.europa.eu)

So each offer in the adult education should be orientated to this framework.

A further requirement for adult education is the preparation for Industry 4.0, short "Adult Education 4.0". "It can hardly be disputed that digital skills are essential for participation in the society of the future... Future concepts of work will not just require skills in dealing with the internet of things, but also in aspects of augmented reality, big data, virtual reality, 3D printing, artificial intelligence etc." (Compare Otto Rath). Which skills and competencies will be needed in the future is not defined up to now and it will change very fast. So networks and platforms have been built e.g. in Germany: FreQueNz to identify future qualification needs. So Adult Education 4.0 should not only be interpreted in a technical way but also consider the need of learning and working in an own responsible

way. So possibilities should be created for learning and acquiring knowledge in an independent way.

The acquisition of those competencies is a huge challenge for the adult education in general and for online learning especially because learning to act in this future world should be available for a wide range of people in different living situations.

In the European countries, youth unemployment is a major problem. An incomplete school education, social problems complicate or prevent a good transition to professional life. On the other hand, there is a great demand for well-trained offspring. Here, integration measures and educational offenses must be developed, not only to convey professional content, but also to improve the general education and social competence of those affected.

For employees in working areas with shift work, offers must be developed on an online learning basis in connection with present measures with timed phases. As a result of the increasing population migration, improved education measures for cultural and integrative education, language training and professional qualification must be established in the target countries. This applies to the fields of vocational training, as well as to academic training. The relevant facilities must adapt themselves to these needs in terms of personnel and organization.

Development of mechanisms

The considerable qualification pressure creates a corresponding financial need. The costs cannot be borne by the individual. On the one hand, support programs and grant systems for individual training and further training must also be established for companies and other institutions.

Labour administrations, professional associations and other associations must be increasingly compulsorily employed here. Programs have already been initiated in the EU and at the national level, but there is a considerable need for enlargement.

The educational offer should be targeted and optimized in time. Courses and trainings tailored to each age group must be established. Through industry, industry associations, trade unions, government organizations and on an international level, analysis programs are conducted concerning the structure of the employees and the profile of their activities. However, these measures must be carried out more consistently and always be evaluated at all times. The resulting findings have to be implemented in educational programs to be developed in order to be able to respond better to specific requirements.

Limits and risks of online learning

In order to point out the limits of e-learning, we first have to distinguish between knowledge and competences. Knowledge refers to the objective side when, for example, a subject's knowledge is spoken. In this sense, knowledge is the content of the courses offered by e-learning. Competence refers to the subjective side: the learning or



educational goal; what the learner has not only learned and learned afterwards, but what he can do. This distinction is important because it prevents the content of e-learning offerings from being confused with the content of learning processes. A learner can learn with e-learning knowledge. Higher levels of competencies, on the other hand, require contexts that cannot offer e-learning inadequately. To argue and to justify is to argue with the arguments, objections, and critical queries of others and to expose others of their own reasons.

Even when it comes to the training of competence and practical responsibility, the context is relevant in which the respective competences are required and can prove themselves.

Also, the e-learning system's own learning success quickly encounters limits when it comes to more than query knowledge, and life-related or job-related contexts become relevant.

E-learning is therefore today in the main presentation of objective knowledge and less suited to acquire skills.

One of the risks of e-learning is the excessive demand to the learners: "everything is getting too much for me". This feeling pervades more and more professionals, not because of the workload, but because their job is increasingly confronted with challenges for which they have not yet developed routines. A correspondingly great mental effort is necessary to master them. Online learning offers availability at any time, coupled with the inner sense of the commitment and perhaps even the outside requirement to train with the help of certain tools, increasing the stress for those professionals beyond the present time in the company. The work-life balance is unilaterally burdened. Good time management is required, but will not suffice to meet this additional requirement.

II.3 Preconditions for developing an e-learning course

Planning is the key of successful implementation of innovative methodologies in learning processes. Regarding the implementation of e-learning it needs a wide range of expertise and different levels of decisions, so at first you should design a road map for the development including the following key questions.

Pre-requisites to develop e-learning

Before talking about technology you have to check your goals, the conditions provided by your organisation and the individual and social environments of your participants. Otherwise, you would have a new methodology but nobody will use it successfully.

So you should work on these key questions before starting the process of implementation:

- Which are the course goals? What elements of a course are well suited for e-learning? Which learning outcomes do you expect?



- Are their existing programs for these learning outcomes or do you have to design your own ones?
- Which are the expectations and the experiences of the learners?
- Do you have the expertise to implement e-learning or do you need support from external experts?
- In which kind will the program be used, how can you ensure participants will achieve a comfort level with the technology?
- What can be done for avoiding drop out? Would it be possible and useful to tutoring the course, to organize common events for the online-learners or would you provide it only as blended learning accompanying a face-to-face course?
- In which way will the learning outcome of the program be evaluated?
- How can the learning outcomes be certified?
- Which kind of technology would fit the best to your conditions, to the expected learning outcomes, to the participants? Do you need an own learning platform, can you participate on an existing one, which one should be used or may you do it only by OER in the internet?
- How can you ensure data security? What rules will be defined?
- In which way will you train the trainers for using the new methodology?

Building the operational team

Implementing e-learning is not a one-man show. You will need a team with a wide range of expertise:

- Pedagogic staff, which is experienced in organizing adult learning
- Teachers or trainers with the practical experience with the target group
- Probably trainers who have experienced e-learning in another surrounding
- Administrative persons who should accompany the process from the legal side and the financial resources of the organization
- Technical staff for creating the technical environment and for advertising the team in all technical decision.

Starting the process

In a third step you should design a time-table for the implementation.

At first you should organize a kick-off with the staff and the trainers/teachers of your organisation. You should inform them about the project and its goals. Teachers and trainers, especially older ones sometimes feel not comfortable with the idea that learning

should happen in another than the classic way. For implementing e-learning successfully it is crucial that all staff is involved from the beginning and questions or critical voices are taking into account. Trainer may fear that they will lose their job but, in an educational institution e-learning will complement the classroom courses, it will not replace them. This should be clarified at the starting point.

If you decide at the end to create your own learning platform (i.e. using a Moodle platform) you should compare the different possibilities to host them because the prices and the provided services are pretty different.

Obstacles and problems

As mentioned above you have to face the strict rejection of online learning methods by some teachers and trainers. Beside of good training concepts for them and their inclusion in the process of development a legal framework should be constructed which guarantee payments for work done in the area of e-learning (consulting, development, tutoring, testing and correction).

People enrol in an online learning program but they do not attend the course or they start but they do not continue. The early withdrawal is one of the most reported problems in the context of online learning. Associated to this observation disappointment about the low learning outcome is reported too. In a survey with more than 500 students, Prof. Dr. Schulmeister (see below) constitute that the learning outcome is significant lower if a student does not spend enough time in the university. Which means that if a student is learning by reading books and using online learning the outcome is worse than of those students attending frequently the courses.

You should keep this in mind by implementing online learning and identifying your expectations to this method carefully.

At least the technical environment and the administrative framework may cause problems. The institution has to offer advance service, payment will be expected later. Organising a face-to-face course means you start if you have enough participants.



III. USE OF NEW TECHNOLOGIES IN EDUCATION

III.1. Uses of ICT in education

In recent years there has been a groundswell of interest in how computers and the Internet can be harnessed best to improve the efficiency and effectiveness of education at all levels and in both formal and non-formal settings. But Information and communication technology (ICT)¹ is more than just these technologies; older technologies such as the telephone, radio and television, although now given less attention, have a longer and richer history as instructional tools. For instance, radio and television have for over forty years been used for open and distance learning, although print remains the cheapest, most accessible and therefore most dominant delivery mechanism in both developed and developing countries. The use of computers and the Internet is still in its infancy in developing countries, if these are used at all, due to limited infrastructure and the attendant high costs of access. (Tinio, 2002)

E-learning, a new type of ICT expands the range of courses. It can provide highly qualified e-tutors and scheduling flexibility, affords opportunities to non-traditional participants, increases the teaching of technology skills and provides professional development opportunities for e-tutors.

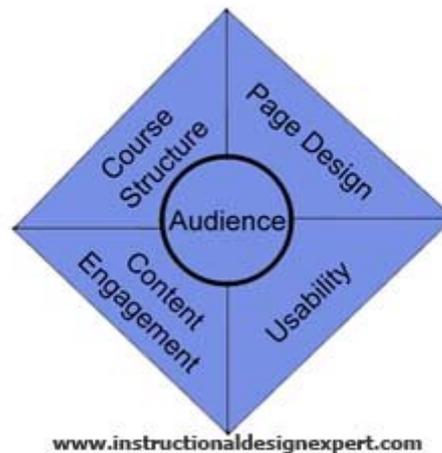
Technology use can be tricky sometimes. We should keep in mind that technology should be used to serve participant's learning objectives. The general needs of the online participants are the access to education, the flexibility of time, place, and pace, the individualization of the level of the curriculum, the use of different learning styles, to address multiple intelligences and personality types, a safe environment, courses that are not overcrowded and a learner-focused education.

¹ Information and communication technology (ICT) is an extended term for information technology (IT) which stresses the role of unified communications and the integration of telecommunications. (Wikipedia, Information and communications technology, 2017)



III.2. Introduction to e-learning

E-learning components



Five e-learning components are essential for all successful online courses. Understanding these components will help you design and develop a course that meets computer-based training objectives. The diagram above illustrates how these components are connected. Each e-learning component plays an important role in designing an online course. Among all of the components, none plays a larger role than the Audience. (IDE, 2009)

Audience

Everything designed and developed should be done with the audience in mind. The analysis of the audience can help determine the basic structure of the other four e-learning components. When we start developing our online course, it is important to consider the expectations, the learning abilities (prerequisites), the available hardware and software, the learning environment, the job responsibilities and the preferences of learning of the audience.

Course structure

Course structure refers to how a course is designed for e-learning. The structure of a course plays a critical role in how our audience learns the content of the course. Storyboarding is a great way to build the course structure. When structuring a course, it is important to consider to group content into logical modules, avoid creating modules that exceed 8-10 pages and incorporate interactive concepts and use pictures/graphics to help explain ideas, concepts or statements.

Page Design

Like the importance of charm and charisma of the classroom instructor, the page design of an online course is critical to the learning process. How a page is designed can have a huge impact on the learning experience of our audience. Consider some of the following tips when formatting a course:

- Navigation must be intuitive.



- Appearance must not hinder the learning process.
- Balance between text and graphics is critical.
- White space is good.
- Chunking information into small bits is crucial.

Content Engagement

Content engagement refers to how the learner interacts with content of the course. Because studies have shown that the learning experience is greatly enhanced when exercises or activities are incorporated into the learning process, content engagement is critical. Engaging exercises or events within e-learning can compensate for the lack of an instructor who can add that human touch through personality and rhetorical interactions. Similar to classroom training there must be a balance in applying engaging content. Too much engagement and we risk overshadowing the learning objectives. Too little engagement and we risk losing the learner's interest in the topic. Consider the following when attempting to engage the learner in an e-learning environment.

- Use hyperlinks for additional concepts, explanations, or definitions.
- Incorporate interactive graphics such as animations or simulations.
- Provide additional options/choices for the learner.
- Incorporate quizzes, tests, skill assessments.
- Create fun activities such as games or other educational methods of interactive learning.
- Keep activities focused on the course objective.
- Avoid letting the technology overshadow the course objectives.

Usability

Usability refers to the testing of e-learning content and applications. Once you have built your online course, you should always test it in the same environment that the learner will complete the course. When conducting the usability analysis:

- Verify that all links work properly.
- Ensure that activities function as designed.
- Inspect content to ensure that grammar and spelling are correct.
- Ensure that graphics are visible.
- Verify that the course works appropriately in all applicable server environments.
- Verify that screen resolution works for the intended audience (e.g. 800X600, 1024X768). You should also take into account developing content that works responsively for smartphones and tablets.
- Verify that course objectives and expectations are met.

Knowing and understanding these five major e-learning components will help build instructionally sound and successful online programs.



What is e-learning?

E-learning can take many names and different terms can be used to express almost the same thing. Some definitions to better understand e-learning:

E-learning can be defined as the use of computer and Internet technologies to deliver a broad array of solutions to enable learning and improve performance.

Virtual Education is defined as a distance learning that takes place via the Internet and whose central defining characteristic is the separation of the e-tutor and the learner geographically.

Online learning is instruction via a web-based educational delivery system. Online learning transcends the old pedagogical separation of space (the walls of the classroom) and time (scheduling, timetable) so that learning beyond the walls of the classroom and the cells of the timetable is of the same nature and intensity as or even better than the best traditional classroom learning. Online learning introduces the ubiquitous learning, where you can learn anywhere and anytime.

Why should you develop an e-learning approach?

Studies have shown that if properly implemented, e-learning can be as effective as more traditional methods of education². The main advantages that e-learning offers (Davies, s.d.):

- Flexibility. Learning can be scheduled around other commitments such as work and family. Learners can study anywhere they have access to a computer and Internet connection.
- Convenience. Rather than having to travel to school, it is possible to undertake learning in the convenience of the home or work.
- Learning can be individualized and accommodates many learning styles. Self-paced learning modules allow learners to work through materials at a pace that suits them.
- Active learning. E-learning encourages learners to take responsibility for their own learning and encourages a more immersive learning environment which engages the learner's attention.
- Learning can be compressed and more efficient. A study by Brandon Hall found that there is a 35-45% saving of learning time when a course is taken out of the classroom and delivered as e-learning³.

Different approaches for implementing e-learning

² Cook DA, Levinson AJ, Garside S, Dupras DM, Erwin PJ, Montori VM. Internet-based learning in the health professions: a meta-analysis. JAMA 2008;300:1181-96

³ Epic. Organisational benefits of e-learning. 2012



The implementation stage is the actual course delivery. The courseware is installed on a server and made accessible for learners. In facilitated and instructor-led courses, which integrate content with e-tutoring and collaborative learning components, this stage also includes managing and facilitating learners' activities. (Ghirardini, 2011) Some methodologies to implement and manage e-learning:

- Organization into sessions of the online courses. It can be daily or weekly, depending on the duration of the course and on learners' available time. Some typical components of an online course are the kick-off event, the pre-course learning activity, the cycle of learning events, the final assessment and the feedback and conclusion.
- Planning and documenting activities. Documentation will be used by facilitators as a guide to implement the activities and can be shared with learners at the beginning or throughout the course. First, a course syllabus needs to be developed which describes session topics and learning objectives. Based on the course syllabus, a storyboard specifies the activities that will be carried out and the materials that will be provided to learners in each session.
- Facilitating learners' activities. In collaborative online learning, a group of participants creates synergy around common learning goals. The online facilitator is responsible for ensuring that this process is organized, stimulating and efficient.
- Using communication tools for e-learning. The most common tools are: e-mail based tools, discussion forums, wikis and other shared writing/editing tools, blogs, webcasting, chat and instant messaging (IM), polling, whiteboard and screen-sharing tools, application sharing, audio and video conferences.

Quality of e-learning

We can say that quality in e-learning is all about transformation. It describes the increase on competence or ability as a result of the learning process, as transformation. The pedagogical aspect plays the greatest role in the meaning of quality. According to a study (Ulf-Daniel Ehlers, Lutz Goertz, Barbara Hildebrandt, Jan M. Pawlowski, 2005) of the European Quality Observatory, several requirements must definitely be taken into account in the future development of standards of quality: participation, transparency, familiarity and acceptance, openness, suitability and scalability, harmonization and integration, integrated methodology, quality awareness, measurability.

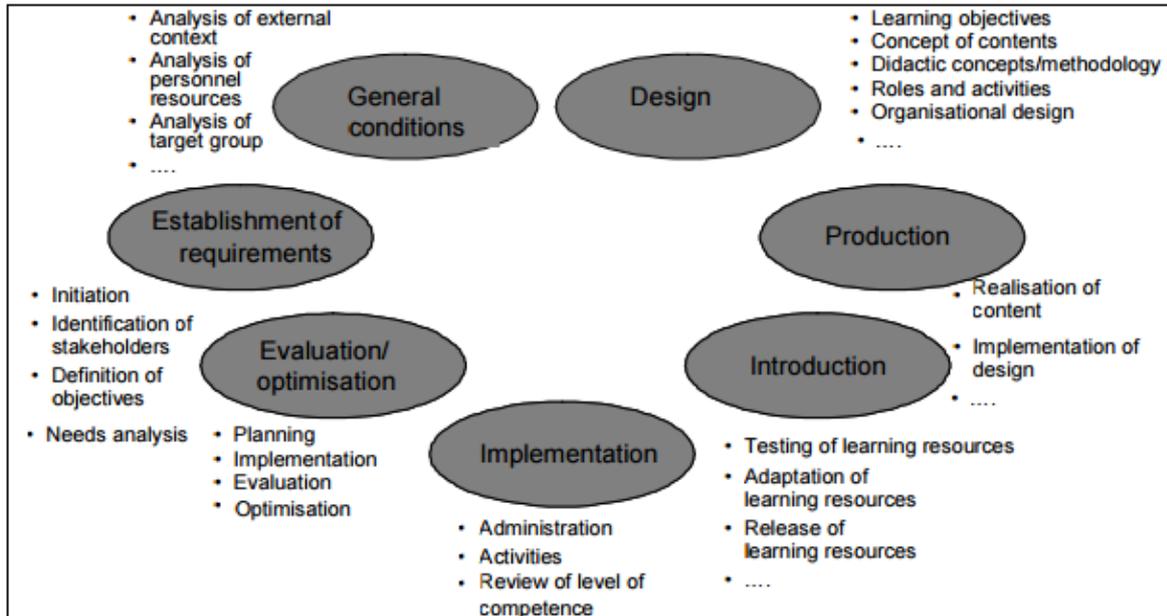


Figure 1 Processes of the reference framework for the description of quality approaches

Blended learning

Blended learning is an education program (formal or informal) that combines online digital media with traditional classroom methods. It requires the physical presence of both teacher and student, with some element of student control over time, place, path, or pace. While students still attend "brick-and-mortar" schools with a teacher present, face-to-face classroom practices are combined with computer-mediated activities regarding content and delivery. Blended learning is also used in professional development and training settings. (Wikipedia, 2017)

Blended instruction is reportedly more effective than purely face-to-face or purely online classes. Blended learning methods can also result in high levels of student achievement more effective than face-to-face learning. By using a combination of digital instruction and one-on-one face time, students can work on their own with new concepts which frees teachers up to circulate and support individual students who may need individualized attention. Proponents of blended learning argue that incorporating the "asynchronous Internet communication technology" into higher education courses serves to "facilitate a simultaneous independent and collaborative learning experience". This incorporation is a major contributor to student satisfaction and success in such courses. The use of information and communication technologies have been found to improve student attitudes towards learning.

III.3. E-learning for adult education

Analysing adult learners

The adult learner and the manner in which he or she learns best have been questioned and researched since the 1920s, when adult education became a professional field of



practice (Merriam, 2001). Today, several theories and models attempt to explain adult learning. One of the most well-known theories is Malcolm S. Knowles' learning theory of andragogy, the art and science of helping adults learn. Andragogy is a learning theory that is designed to address the particular needs of adults, and it is based on the idea that there are significant differences in learning characteristics between children and adults (Knowles, 1980). (Cercone, 2008)

Most adults were taught in a traditional and passive classroom. Online learning environments are also new to instructors, who have to learn new methods for teaching in this kind of setting. Learners and instructors both need to adapt and change as they learn how to use this new medium. According to Moore and Kearsley (1996), "most distance education students are adults between the ages of 25 and 50. Consequently the more one understands the nature of adult learning, the better one can understand the nature of distance learning" (p. 153)

Adult learners are different from traditional college students. Many adult learners have responsibilities (e.g. families and jobs) and situations (e.g. transportation, childcare, domestic violence and the need to earn an income) that can interfere with the learning process. Most adults enter educational programs voluntarily and manage their classes around work and family responsibilities. Additionally, most adult learners are highly motivated and task-oriented (Merriam & Caffarella, 1999). Adults are insecure in many decisions that they need to make. Life is complex due to career, family, and other personal choices. Biological changes take place as individuals age, and it has been shown that memory decreases with age.

Identifying adult learners' needs

The primary consideration of instructors as they design online learning environments should be that each learner is a unique being. Learners are real people with distinct needs. Understanding adult learning theories is also important, as is being able to change and accept change in a dynamic learning environment. The instructor needs to be open and honest with each student and respect each person as an individual who has experience that may be valuable to the classroom.

Adult learning is about change. The instructor needs to acknowledge that he or she may be a change agent and appreciate that adult students are undergoing transformations as they go through the learning process. Supporting learners as they go through these changes and allowing and helping reflection require the instructor to act as a facilitator rather than a lecturer, allowing students to experience discovery as part of the learning process.

Online learning will continue to grow in importance for adult learners. The challenge for educators is to learn how to provide a positive "social" environment using an electronic medium. Technology will continue to change as new technologies are developed. Instructors will need to adapt, change, and continue to learn about how this "electronic"



environment can be used to foster a social atmosphere, and they will need to recognize their role as change agents. (Cerccone, 2008)

IV. DESIGNING AN E-LEARNING APPROACH

This section provides direction on how to design with success an e-learning course starting from identifying course content and needs, through analysing the target audience and task/topic analysis, to the description of learning objectives and defining instructional methods, continuing with exploring existing evaluation methods and choosing existing learning strategies and delivery formats⁴.

IV.1. Identifying course content

Creating an e-learning course to achieve specified outcomes requires effort in three domains (i) planning (identifying course content and defining measurable learning objectives for it); (ii) instruction (selecting and implementing the methods that will be used to deliver the specified content and facilitate student achievement of the objectives); and (iii) assessment and evaluation (selecting and implementing the methods that will be used to determine whether and how well the objectives have been achieved and interpreting the results)⁵. The analysis and design stages are essential to ensure course effectiveness and learners' motivation and participation. Analysing learners' needs and learning content, and finding the appropriate mix of learning activities and technical solutions is crucial to creating an effective and engaging course. Course effectiveness and participants' motivation depend on several elements, including:

- Relevance of the content and course objectives for the participant
- Type of learning activities offered by the course
- Course duration, timing and number of hours to be invested
- Technical aspects
- Feedbacks (regular and relevant) from the tutor if there is one (blended learning, for instance)

IV.2. Analysing the target audience

Developing an e-learning course that offers informative, well written content and high quality design elements are essential to any successful e-learning project. However, knowing your audience can make the difference between an effective e-learning course and an e-learning course that falls short of expectations (even if you've spent countless hours and resources creating a unique e-learning course)⁶. As such, one of the most invaluable e-learning tasks at your disposal as an Instructional Designer is an e-learning course audience analysis. Here are the six key questions you will have to ask to effectively analyse your e-learning target audience:

⁴ http://www.rulearning.com/demo/ru_whitepaper_idstrats.pdf

⁵ Felder, R., Brent, R., 2003. Designing and teaching courses to satisfy the ABET engineering criteria. Journal of engineering education, 92 (1), pp. 7-25. [Online] Available:

http://www4.ncsu.edu/unity/lockers/users/f/felder/public/Papers/ABET_Paper_%28JEE%29.pdf

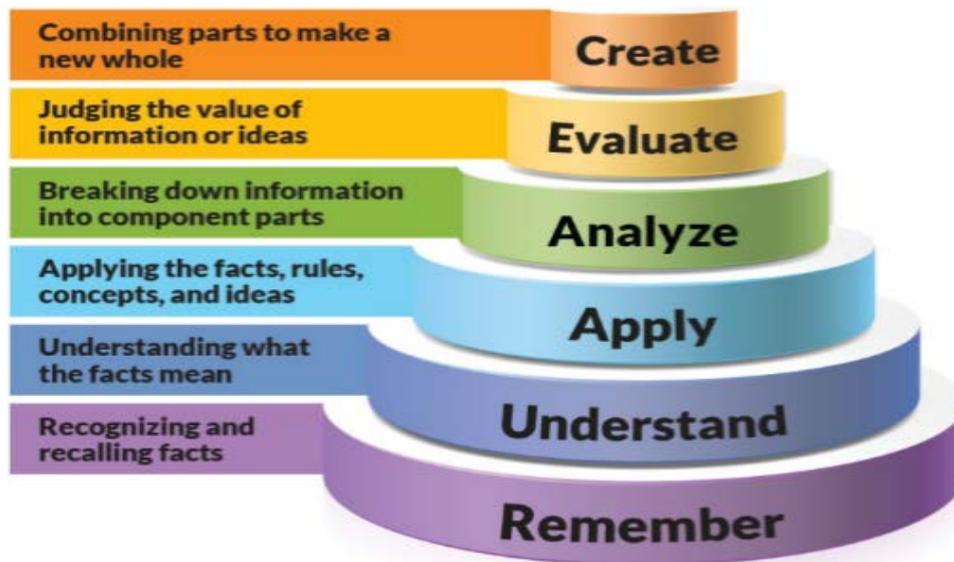
⁶ <https://e-learningindustry.com/6-key-questions-to-effectively-analyze-your-e-learning-course-audiences>



1. What is the primary goal or objective of your e-learning audience?
2. What are your learners' educational background and/or learning abilities?
3. When and where will the learners be learning?
4. What information and skill-sets will the learner need to acquire?
5. What are your audiences' technical requirements (or limitations)?
6. What is your audiences' learning preferences?

By looking at the tasks and content elements identified in the task and topic analyses, it is possible to translate the overall course goal into more specific learning objectives⁷. Learning objectives define the expected outcome of each learning unit. For example, will learners be able to memorize the steps of a procedure or will they actually be able to perform it? A learning objective is a measurable statement describing a competency or performance capability to be acquired by the learner. Objectives should be specified for the course as well as for each single activity. Learning objectives combine two main elements, the expected level of performance (through an action verb, such as “describe” or “explain”); and the learning content (i.e. the type of knowledge or skills that must be learned, such as “the main objectives of a computer security information system”).

According to the revised Bloom's taxonomy⁸ of the cognitive domain, learning objectives can imply six different types of cognitive performance, ranging from the lowest performance level (remember) to the highest (create) as can be seen from the figure below. It can help broaden our view of what learners should learn.



Clear learning objectives allow the development of learning activities which are really focused on learners' needs and provide the basis for evaluation tests. It is important to ensure that learning activities and evaluation tests aim to develop and assess the same

⁷ https://www.uwo.ca/tsc/graduate_student_programs/pdf/LearningObjectivesArreola.pdf

⁸ [http://educationale-learningresources.yolasite.com/resources/guildresearch_blooms2013%20\(1\).pdf](http://educationale-learningresources.yolasite.com/resources/guildresearch_blooms2013%20(1).pdf)

type of performance and learning content as expressed in the learning objectives; in other words, they need to be aligned with the learning objectives.

IV.3. Defining instructional methods

Once the course structure has been defined, the best mix of methods and techniques for a specific e-learning course must be proposed. The design of an e-learning course will involve using a mixture of the following instructional methods:

- Expositive methods that emphasize “incorporation” of new information like presentations, case studies, worked examples, demonstrations.
- Application methods highlights the active processes learners use to perform procedural and principle based tasks and build new knowledge like demonstration, case-based or scenario-based exercises, role play, simulations and games, guided research, project work.
- Collaborative methods give emphasis to the social dimension of learning and engage learners sharing knowledge and performing tasks in a collaborative way in terms of online guided discussions, collaborative work and peer tutoring.

Each method can be delivered in different formats, using different types of media and communication tools.

IV.4. Defining the evaluation strategy

Another important decision relates to the evaluation strategy for your online course and it is very significant to pay attention to this from the course design stage. By establishing the purpose of the evaluation, the teacher could check the quality of the course to improve it before it is implemented (formative evaluation); measure the effectiveness of training and learning immediately after the course has been implemented (confirmative evaluation); evaluate an old course to see if it is still valid or needs to be modified (summative evaluation); or deciding whether or not to proceed with a course before we have devoted too much time or too many resources to back out (predictive evaluation). Then, teachers will need to define if they want to evaluate learners’ progress and/or provide recognition. This will also influence the choice of the assessment examinations that will be integrated into the course design. Actually, teacher can assess learners’ knowledge, competences and skills before the course starts, at a certain point in the course (e.g. middle evaluation) and/or after the completion of the entire course. As mentioned previously, it is important to ensure that the assessment examinations are aligned with the course learning objectives. For this reason, it is advisable to start drafting the assessment examinations from the first stages, just after the definition of the learning

objectives for each learning module. So, the overall evaluation strategy and the methods for assessing learners' progress must be defined as part of the course design stage⁹¹⁰.

IV.5. Learning platforms

An e-learning platform is a software application that integrates different management tools, communication, evaluation, monitoring, etc. with the aim of providing technological support to teachers and students to optimize the various phases of the teaching-learning process, either the educational process completely remote, classroom or mixed nature and combine both modes in different proportions. Moreover, a learning platform is an integrated set of interactive online services that provides the teachers, learners, parents and others involved in education with information, tools and resources to support and enhance educational delivery and management. It is a comprehensive system enabling secure, web-based training and e-learning solution that employs a simple and intuitive user interface¹¹.

There many types of learning platforms that can be used to host e-learning courses and make them accessible to learners. The learning platforms with different levels of complexity, but their most significant features include learning content management (creation, storage, access to resources), curriculum mapping and planning (lesson planning, personalized learning experience, assessment), learner engagement and management (learner information, progress tracking), and tools and services (forums, messaging system, blogs, group discussions).

Learning platforms are usually known as virtual learning environments (VLEs), learning management systems (LMSs) or learning content management systems (LCMSs). These names are often used without knowing its difference but they have many common features. For example virtual learning environments are used to replicate traditional face-to-face classroom instruction activities by facilitating teaching and learning with a strong collaborative component. A learning management system assists in delivery and management of all learning offerings (online, virtual classroom and instructor-led courses). It automates the learning course and easily delivers training, manages learners and keeps track of their progress and performance across training activities, which reduces administrative overhead. And or learning content management systems which is a multi-user environment where learning developers can author, approve, publish, and manage a learning content.

How do VLEs differ from LMSs

Basically, there are no functional differences between LMSs and VLEs, but the distinction comes more from the setting in which they operate¹². LMSs are primarily for training

⁹<http://www.e-learninglist.com/whitepapers/101E-LearningStrategyarticle7-05.pdf>

¹⁰<https://www.efrontlearning.com/blog/2011/01/introduction-to-evaluation-in-e-learning.html>

¹¹https://www.ttu.ee/public/h/haridustehnoloogiakeskus/img/12_reasons_web_final-3.pdf

¹²<https://e-learningindustry.com/difference-between-lms-and-vle>



while VLEs are primarily for education. For example, Moodle is considered to be an LMS within corporate e-learning, but it is referred to as a VLE in the education sector where it promotes a communicative and collaborative approach. An LMS is used by training administrators to manage all aspects of learning and development, such as skill/competency, personal development plans, learning content management, reporting and workflow. A VLE, instead, supports facilitated online learning within education institutions and allows tutors and students to share content. This means that VLEs do not necessarily contain all the content within them – they may only provide links to content outside. VLEs are increasingly being adopted as LMS replacements; products like Moodle or Blackboard originally adopted for the education institutions are now widely used by the corporate market for online and blended solutions delivery.

An additional type of platform is the learning content management systems (LCMSs), that focuses mainly on creating e-learning content. Namely, developers and administrators create chunks of digital content material (text books, papers, quizzes, video materials), which then are quickly assembled, reused and adapted into different courses according to learners' needs. LCMSs reduce development efforts and allow digital content to be easily repurposed.

Both LMSs and LCMSs are designed to manage course content and track learner performance and learning objects, but they differ in their purposes. While LMSs manage and track online activities, classrooms and all sources and events, LCMSs do not manage blended learning, but only the digital content, even at its lowest levels.

It is difficult to draw a fine line between these platforms. New generations of platforms are modular – they consist of “plug-ins” and “add-ons”, software components that extend platforms' basic functionalities.

Proprietary vs. open source LMS

Learning platforms exist as proprietary software or open source¹³. Explicitly, proprietary LMSs are licensed under exclusive legal right, restricted from modification, further distribution, reverse engineering and other uses. They are closed-source with license costs per user. From other side, open-source LMSs instead work under the terms of the General Public License. The license is intended to guarantee freedom to share and change the program and ensures that it is free for all users. Moreover, proprietary LMS software is developed and owned by a profit-generating body that does not let users access and make adjustments to the computer code that determines the structure of the software and the activities it can perform. It is a closed system from the side of the organization that deploys it. Examples of these types of LMS include Blackboard (www.blackboard.com) and Desire2Learn (www.d2l.com). There can be several advantages to implementing a proprietary LMS:

¹³ <http://er.educause.edu/articles/2014/4/selecting-a-learning-management-system-advice-from-an-academic-perspective>



- It is reliable, because it is built by professionals who are paid to build an effective and efficient product;
- It is current, because the product must be competitive, though there might be some lag time between when a new idea is generated and when it is implemented;
- It links with various enterprise software systems, such as those that process financial, human resources, and administrative data;
- It is supported by a company that provides training, technical support, and warranty service;
- It can be hosted by the company that makes it or leased to the user.

Not everyone is a fan of proprietary LMS software. Proprietary software can be expensive, especially for institutions with small enrolments. The users and their organizations cannot access the underlying source code and thus cannot adjust the software, add features, or correct bugs immediately. There not be kept current and some users consider proprietary software too restrictive.

From other side open-source LMSs are developed by individuals for many reasons, but usually because they believe they have a "better idea" about how an LMS should function. The best example is Moodle (www.moodle.org) which is learning-centred and Sakai (www.sakaiproject.org) described as a community creating technology that enhances teaching, learning and research through the essence of collaboration and community. Following are several advantages of implementing open-source LMS software for instruction and learning:

- Can be easy to obtain;
- Allows users work on the source code and to make changes and enhancements;
- Permits users to obtain any available updates, which are accessible to everyone;
- Can be set up by an teacher without involving technical support;
- Avoids restrictions that institutional administration might force;
- Supports collaboration with others because is accessible and can be used by anyone.

An open-source LMS can also bring disadvantages. Even if mostly the open-source software might appear to be free, funds are required for hosting, maintaining, and upgrading the software as well as cover additional storage and database support. Very often additional resources are needed to integrate open-source LMS software with existing administrative systems. Technical support can be another significant issue. The quality of the code and the robustness of open-source software might be questioned. The open-source LMS software might not provide the needed security and privacy settings by educational institutions.

Nevertheless, the arguments for and against proprietary and open-source LMSs depend on individual point of view.



Moodle and other open-source LMS solutions

Moodle is a widely used learning platform because it is free of charge and open-source¹⁴. Moodle promotes a collaborative approach. It was originally made for education, training and development environments to help educators create online courses with a focus on interaction and collaboration, although lately it has been extended to business settings as well. Moodle has most of what you would expect in an LMS, like student dashboards, progress tracking and support for multimedia classes, and additionally includes mobile friendly themes, support for third party plug-ins and add-ons and the ability to sell courses using PayPal. Because Moodle is the big open source player in the LMS space, it is supported by a massive and active community with tons of plug-ins and options to customize it to your exact specifications. Moodle is not the only one, there are many open source alternatives:

- Docebo (www.docebo.com)
- Dokeos (www.dokeos.com)
- Claroline (www.claroline.net)
- ATutor (www.atutor.ca)
- ILIAS (www.ilias.de)
- OLAT (www.olat.org)
- .LRN (www.dotlrn.org)
- openlms (www.openlms.org)
- Ganesha (www.ganesha.fr)

Solutions for limited or no connectivity

Confronted with technical limitations, like very limited or no online access and an unreliable supply of power electricity, organizations need to evaluate those solutions that will allow users to work with a lack of connectivity and limited ICT infrastructure. In these cases, a potential solution is to run an LMS on a local-area network (LAN) in the client-server architecture. In this model, a server provides resources or services, while client PCs request and retrieve content from the server via a computer network. Offline players are another possible solution in cases with limited or no connectivity. These applications can download and operate offline digital course content and track learners' progress and preferences. Learners can take the course without having to access the Internet. Once an Internet connection is established, it automatically synchronizes with the LMS and updates data. Following are few offline players:

- Meridian (www.meridianks.com)
- blackboard Agilix backpack (<http://agilix-backpack.software.informer.com/>)
- Harbinger (<https://lms.harbingergroup.com>)

¹⁴ <http://blog.capterra.com/top-8-freeopen-source-lmss/>

Standards in e-learning

There are several standards for authoring and publishing content into an e-learning environment¹⁵.

SCORM (1.2, and for that it's important to study the capabilities of the platform we're using before creating our course content.

Before the existence of the standards, creating content implied tailoring it to a specific platform, making it difficult to migrate it afterwards or to export it to other formats (for example, for offline viewing).

Of the standards still in use, **Sharable Content Object Reference Model (SCORM)** is the oldest and still the one with the highest compatibility, even though it's quickly being replaced for more modern formats. SCORM defines a system of communication between the learner using the content and the LMS, enabling it to track the completion of the activities. The latest version of SCORM, **SCORM 2004**, enables sequencing, a set of rules defining the order of objects to be viewed by a learner. SCORM, however, suffers from being very outdated (last update dates from 2009), lacks elaborated analytics on learner's activity and has a weak reporting system.

SCORM content can be authored with tools such as [eXelearning](#).

The most recent and powerful standard that is quickly replacing SCORM as the main format for content authoring is **Tin Can** (also known as xAPI or Experience API). The strongest point of Tin Can is the **Learning Record Store (LRS)**, which stores the learner activity (even when offline) and sends it to the LMS when connected to the Internet. Tin Can also tracks and stores information of a multitude of use scenarios, including mobile learning. In contrast with SCORM, which only allows to track completion and success of the abilities, Tin Can allows a better integrated content (interactive tools, social techniques or games that historically were left outside of the LMS) and better tracking (can track files, PDF, images, essays, audios, etc. from the learner).

Also, the Experience API has received a recent update called **cmi5**¹⁶¹⁷, aimed to be the future of the standards, that insert a set of rules (Launched, Initialized, Completed, Passed, Failed, Abandoned, Waived, Terminated) allowing the activities to be integrated with the internal grading system of the LMS.

Tin Can content can be authored with tools like [Articulate Storyline](#).

¹⁵ <https://mylearningworld.com/scorm-vs-tin-can-vs-aicc-the-lms-standard-showdown/>

¹⁶ <https://mylearningworld.com/new-cmi5-e-learning-standard/>

¹⁷ <https://experienceapi.com/cmi5/>

V. TUTORIAL FOR MOODLE

Moodle (Modular Object-Oriented Dynamic Learning Environment) is one of the most used learning management system in the educative world. As open source software, it allows us to adapt it to our need.

However, its main advantage resides in its vast community support and its extensible system that provides the institutions with a huge amount of resources to adapt and improve their courses.

Under this section we will observe Moodle from the teacher's perspective.

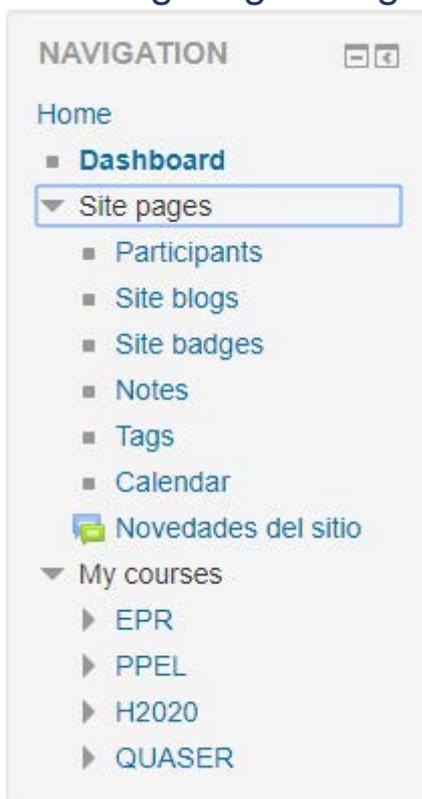
V.1. Minimum requirements

The requirements to access a Moodle platform (from the side of the teachers and students) are quite simple:

- Have an active internet connection
- Use an updated browser (Microsoft Edge, Google Chrome, Mozilla Firefox)
- Have a username and password to access the virtual platform

Given these conditions, users should not have any problem to access the resources of the e-learning platform.

V.2. Navigating through the platform

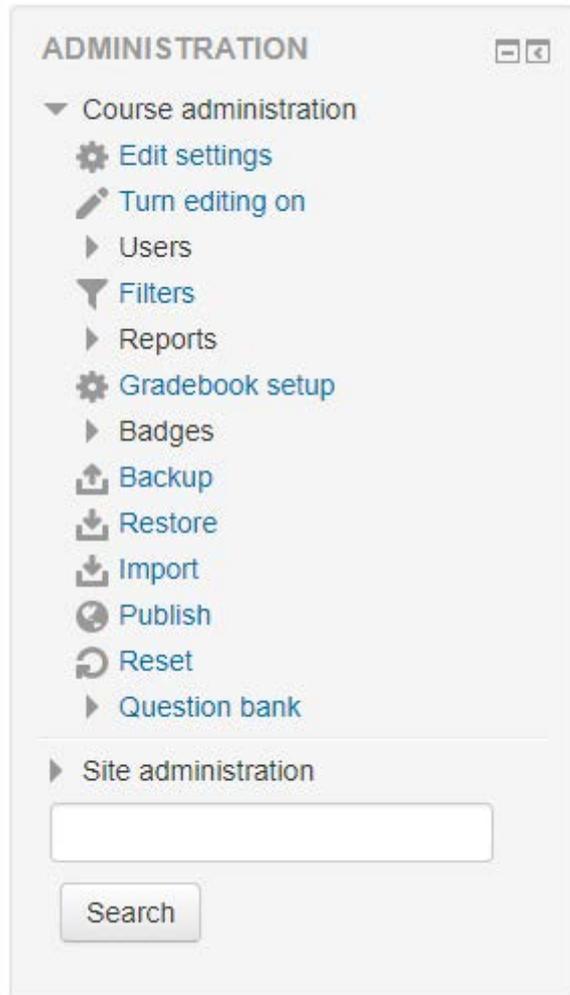


The left **navigation** menu allows for quickly moving between the main sections of the platform, such as:

- **Home:** the homepage of the platform. Usually hosts the course lists and the news and announcements.
- **Dashboard:** Private area of the user. It can be customised to show different aspects of the platform (like the calendar or the private files).
- **My courses:** Courses where the user is enrolled (either as teacher or as student).



When a teacher is inside of the course, another navigation module will appear called **Administration**. This menu will allow modifying any aspect of the course.



V.3. Creating and managing activities and resources

Activities and resources compose the content of the courses. Whether it's a block of text, a quiz, a video or a link, every activity or resource is managed from the same place.

Some of the most common ones are the following:

Assignment

Allows the teacher to communicate tasks, collect work and provide grades and feedback. It's usually the main tool for grading the students.

It can ask the students to upload files (like PDF or Word documents), and to add a text commentary to it. A deadline can be set under which no more submissions will be allowed.

Forum

A common place for the students and teachers to communicate. Usually it's common to have a forum for all the subject, but if the content is very diverse a forum for each section can prove to be more useful.

Glossary

A list of definitions. Can have images and files attached, and can accept comments from the students or other teachers.

Lesson

A lesson is composed of several pages with text, images, videos and quizzes. It allows for non-linear lessons, meaning that depending on the choice of the student it can lead to different path. It's useful to create **branching games**.

Quiz

Enables the teacher to create quizzes and exams with various types of questions, including multiple choice, matching, short-answer and numerical.

File

Serving a file for the student to download. Usually for content that cannot be seen directly through the platform, like PDF or ZIP files.

URL

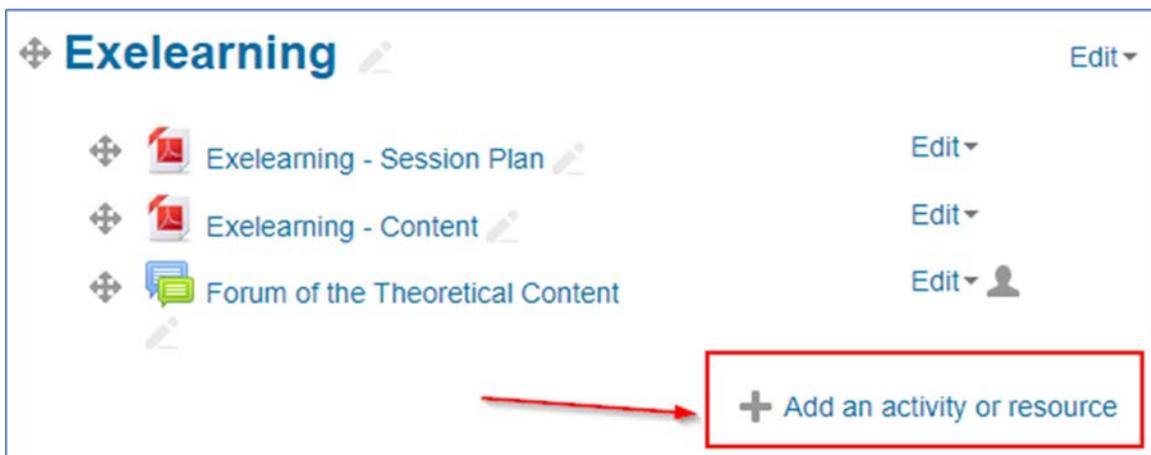
Similar to file, allows the teacher to add a link to another website.



To start adding content to the course, the teacher needs to enable the **editing mode**. For that, the option to *Turn editing on* must be selected.



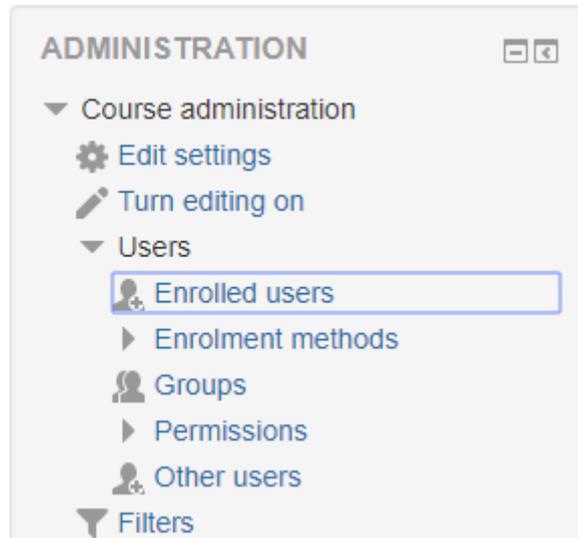
Under **editing mode** we can add, edit, reorder and remove the content. To add new content the teacher needs to select to *Add an activity or resource*.



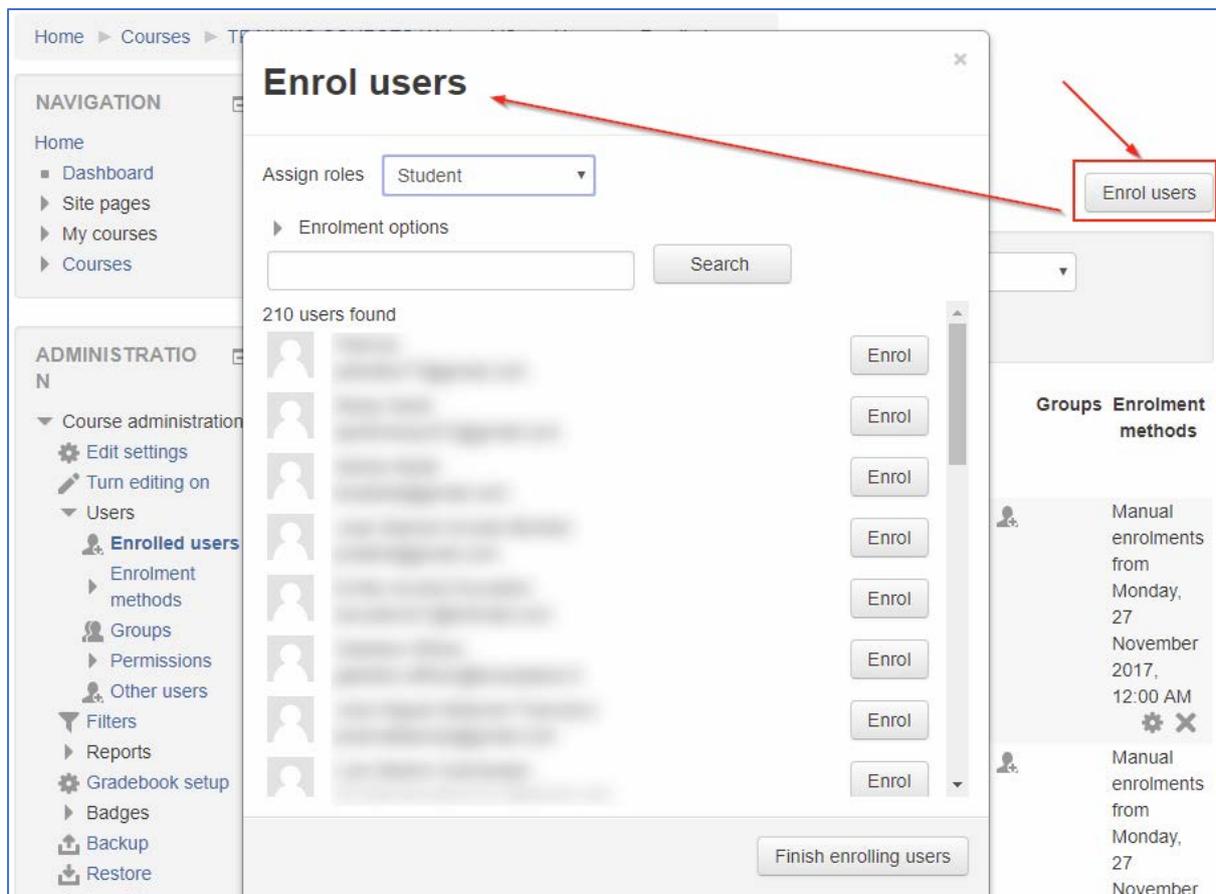
A new window with the different activities available in the platform will appear, as well as the description of it.

V.4. Enrolling your students

We can enrol new users in their course through **Course administration** -> **Enrolled users**. First, the student must exist as a user in the platform.



We'll find the list of already enrolled users there, and a button that invites us to enrol more users.



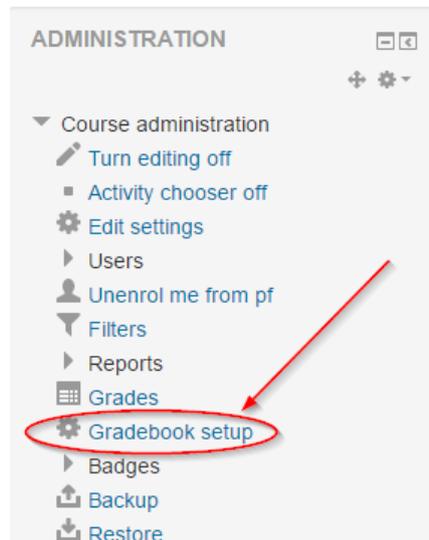
Where the teacher can assign the role and manually add as many users as needed.



V.5. Grading the students with the Gradebook

We can automate the evaluation of the students through the **Gradebook**. The gradebook allows setting the weight that each activity will have on the final mark.

After generating all of the activities that are going to be measured for the grading, the teacher can access the gradebook setup from the administration module.



By default, the weights are distributed evenly, so that every activity has the same impact towards the final mark. We can modify it by checking the checkbox and manually typing the weight (as percentages).

Final Exams	<input type="checkbox"/>	0.0	-
Exam about green energies	<input type="checkbox"/>	50.0	10.00
Exam about Green Energy pp	<input type="checkbox"/>	50.0	10.00
Final Exams total			20.00
Idei principale - Modulul 2	<input type="checkbox"/>	0.0	10.00
final exams 2	<input checked="" type="checkbox"/>	33.752	-
exam about sustainable development	<input type="checkbox"/>	100.0	10.00
final exams 2 total			10.00
Test de evaluare finală	<input type="checkbox"/>	0.0	10.00
Examen final	<input checked="" type="checkbox"/>	27.002	-
Exercise of plastic recyclig	<input checked="" type="checkbox"/>	100.0	100.00
Test topic 1	<input type="checkbox"/>	0.0	10.00



We can also change the evaluation system by finding the course name in this page (the first line of the table) and clicking **Edit**.

Name	Weights	Max grade	Actions	Select
Plastics Free Main Course		-	Edit	All / None
Test de evaluare inițială	<input type="checkbox"/> 0.0	10.00	Edit settings	
exercise of plastic	<input type="checkbox"/> 0.0	15.00	Hide	
Test de autoevaluare - Modulul 1	<input type="checkbox"/> 0.0	10.00	Reset weights	

Inside we can change the aggregation of the grades (mean, median, lowest or highest grade, etc.) as well as the grade type and the maximum and minimum grade.

In the case of blended learning where face-to-face exams may happen, we can add its grades and weights through the **Add grade item** button at the bottom. The gradebook will then considerate it when calculating the final mark.



CONCLUSIONS

E-learning implementation is not an easy task. It requires a well-planned roadmap, an extensive set of resources and more importantly, an educative team of highly motivated teachers and trainers with the objective on mind to success and to provide their students with a comprehensive and holistic educative environment in the form of a Virtual Campus.

The effort is usually materialised into an environment better integrated by the students and teachers, and closer to a digital and modern education approach that will help lay the foundation to the new technologies of this age and prepare better for the digital future to come.

GLOSSARY

Competences¹⁸: Competences mean the proven ability to use knowledge, personal, social or methodological abilities in work, studies situations and personal development.

Demographic change: Shifts in population structure that have emerged in many industrialised nations since the 1970s, chiefly as a result of three major developments: declining birth rates, longer life expectancy and increasing immigration.

Formal education¹⁹: the hierarchically structured, chronologically graded 'education system', running from primary school through the university and including, in addition to general academic studies, a variety of specialised programmes and institutions for full-time technical and professional training.

Industry 4.0: Current trend of automation and data exchange in manufacturing technologies. It refers to the fourth industrial revolution. After mechanisation (first), mass production (second) and automation (third), now the "internet of things and services" is becoming an integral part of manufacturing called Industry 4.0 because of the fourth industrial revolution. The term originates from a project in the high-tech strategy in Germany, which promotes the computerization of manufacturing.

Knowledge: Knowledge is the facts, principles, theories and practices related to the field of work

Non-formal education: any organised educational activity outside the established formal system – whether operating separately or as an important feature of some broader activity – that is intended to serve identifiable learning clienteles and learning objectives.

OER: Open Educational Resources – open licensed teaching- and training material, which may be used under agreed conditions for free. Usually it is provided online.

Online Learning or e-learning: Generally E-learning means learning conducted via electronic media, typically on the Internet. An online learning course may be carried out without meeting a teacher in a classroom. Participants study at home or at work - wherever they like, whenever they like.

Skills²⁰: a level of performance, in the sense of accuracy and speed in performing particular tasks.

¹⁸ [Job Impulse - Knowledge, skills and competences](#)

¹⁹ <http://infed.org/mobi/informal-non-formal-and-formal-education-a-brief-overview-of-some-different-approaches/>

²⁰ [Typology of knowledge, skills and competences - Cedefop - Europa EU](#)

ANNEX I: Do's and Don'ts in E-Learning

Do's

- **Reuse material that you deem appropriate for e-learning.** When authoring materials for e-learning, you may find that vast resources related to it already exists, whether they are or not in an appropriate e-learning format. In such case, and always respecting the copyright of the original author, you may reuse the content and adapt it for better online experience (i.e. you could convert a PowerPoint into a webinar-based activity).
- **Be careful with not showing personal information in the pictures.** An example would be for clinical or medical pictures, where a patient is showing the symptoms of an illness. In such case, crop the photo to show only the parts of the body affected instead of the patient.
- **Consider the language you are using to address your learners.** In case of having multiple authors creating learning materials, write a style guide so everybody uses the same approach (i.e. using the active voice, being friendly, avoiding jargon, etc.).
- **Maximize the usage of the activities.** When using an LMS you will have a vast amount of resources and activities to choose from. Avoid using only big chunks of text for your lessons and combine them with quizzes, surveys, videos, etc.
- **Gamify your environment.** Newest LMS platforms include tools such as badges or experience points that the learner earns by completing activities and challenges. It keeps the learner active and engaged. Use it with the forums to keep an active community in your courses.
- **Use branching stories (serious games).** Create activities where the choice of the learners will take them to a different path each time with different outcomes. Let them learn by observing the consequences of their mistakes and evaluate their capacity to improve and correct themselves.

Don'ts

- **Don't abuse external resources.** Try to avoid external resources and hyperlinks and instead, have everything available as e-learning resources. This prevents the learner from leaving your platform and getting distracted, as well as reducing our time maintaining the course with changing or broken links.
- **Don't make it complicated.** Understand that, in adult education, learners may be engaged in e-learning for time reasons or for work requirements. It is important to have simple resources that the learners are able to complete quickly and get back to work.
- **Don't lose focus.** Keep only the resources that contribute directly to the objectives of the course.



- **Don't use overly technical terms.** Avoid acronyms and jargon. You should clarify the explanations as the lesson advances, leaving no room for confusion. If necessary, the course may have a glossary with important terms.
- **Don't design your course as if it were a traditional course.** One of the advantages of e-learning is the possibility of the learner to complete the course when and where they find suitable, so don't develop your resources as if they were sitting in front of you for hours. Instead of having several text documents, try creating several interactive activities. Instead of uploading the PowerPoint files of your classes, try making a video.



ANNEX II: Best Practices

Project Lifelong Learning in Everybody's home

The example presented below refers to an e-learning platform developed by the project funded by DVV International in 2011 aimed at utilization of IT in learning. The main objective is the improvement of the educational performance and usage of ITC in adult education.

1. Country:	Republic of Macedonia
2. Name of the provider of e-learning:	DVV International Project Bureau in Skopje in cooperation with Sector for lifelong learning in University Goce Delecev Stip for Open Civic University for Lifelong Learning "Joska Svestarot" – Strumica; Open Civic University for Lifelong Learning "Kuzman Sapkarev" – Ohrid; Workers University "Pere Tosev" – Prilep; Centar za Dozivotno Ucenje Skopje/ Lifelong learning Center Skopje
3. Type of education:	Adult Education, Informal
4. Target group:	People unable to participate in the adult education process due to shortage of time and distance to provider. Trainers, managers, guiders. Training professionals that will develop the competences linked to innovation in their daily work with their students. Final public: Adult education learners
5. Number of training courses:	Five How to prepare programmes, How to utilize the platform for provision of online trainings, How to use applications, social networks, blog publishing, How to prepare the online course, How to conduct the online courses.
6. Topic/Area/Field of the training:	Courses that were prepared and are still utilize online are: foreign language courses, accounting, paramedics, ICT.
7. What is innovative:	The usage of the Moodle platform for Open civic universities programs in Macedonia in 2011 in Macedonian language. Example of application form for participants. https://sites.google.com/site/rujssr/Home/za
8. Process of implementation:	Two staged including preparation of the users to learn ICT used in online learning. Implementation of the



	learned and enrolling participants – implementation of the online courses.
9. What is the challenge/problem:	The comfort of the learners to learn from home specially for those who are not well acquainted with ITC
10. Tools used for development of the training course:	International e-learning platform Moodle: Teaching creativity in engineering. How to access: http://elekronskoucenje.mk

Flipped Classroom

1. Country:	Macedonia
2. Name of the provider of e-learning:	South East European University
3. Formal or non-formal education:	Formal education
4. Target group:	Students
5. Number of training courses offered:	1
6. Topic/area/field of the training course:	Flipped classroom
7. What is innovative (if applicable):	<p>In higher education, flipped classrooms are emerging as one of the latest pedagogical innovations. A flipped classroom reengineers the entire education process, literally “flipping” the service delivery from entirely face-to-face contact to partly virtual or “blended” contact. Students who partake in a flipped classroom education experience are expected to familiarize themselves with new and unfamiliar class content in their own time, so that in-class lecture time can be used to complete hands-on task-based activities with their peers and educators. Following are the benefits of flipped classroom implementation:</p> <ul style="list-style-type: none"> • Higher level thinking • Improved grades • Take burden off instructor for all delivery • Be able to check up/flexible for students



- Learning environment is flexible to meet students' needs and schedules
- More room for pedagogical creativity
- Students will know material better—more time, more application
- Students will retain material better
- More customizable for different student abilities
- Class time can target things not being understood/address questions
- Consistency of material across sections
- Elimination of need to repeat same lecture across multiple sections or semesters
- Get PowerPoint out of classroom
- Reach different learners by customizing activities
 - Processing by doing instead of listening
 - Pedagogical creativity
 - Flexibility to meet needs & schedules
- Does this change need for textbook
- Increased and Better Professor/Student Engagement/collaboration
 - Frees up Class time for interaction/group work/projects
- Meets Generation Y (smartphones) where they live
 - Individual work style/creative/values are valued
 - Makes the students act as adults
- Liberating for Professors and Students
- More realistic to future job environment
- Web vs. Hierarchy reflects today's world
- Applicable to both Undergraduate class, Graduate Class, New Professors & Old Professors
- Forces Professors to understand interaction of technology and real life
- Encourage reverse mentoring
- Better achieve course objectives
- "Responsibility Centred Learning"
 - Students responsible for own learning
- Have fun, increase interest in learning
- Immediate feedback and question answering
- More detailed lectures (students can take a break)
- Enhanced connection beyond an online program
- Varies dynamics of classroom
- Broader availability of MORE voices



	<ul style="list-style-type: none"> • Richer classroom experience • Technology gives opportunity to integrate multi-media in classroom • Faculty/Student organization skills • More time for practicing skills • Improved student's outcomes • More fun in active learning • More materials can be covered • Flexible for various situations (emergency situations for example) • Ability to review content before final • Facilitates the non-traditional student (i.e. Online students) • Facilitates organization up front • Makes the schedule flexible and is platform independent (Laptop, mobile device) • Once done, it's there • Use class time for meaningful activities • Use class time to help them with their homework, quiz—use as a discussion tool • Help students with writing either getting feedback from professor or peers (peer grading) • Once content created, save time in long run • Possible for students to "re-access" info (focus on what they don't comprehend & use time more efficiently by focus on those) • More efficient and effective way of promoting learning • Doing/trying something new & receiving support from colleagues • More hands-on time • Gives a valid assessment • Greater immediacy in classroom • Appeals to younger students • Levels playing field for learning disabled students
<p>8. What is the challenge/problem (if applicable):</p>	<ul style="list-style-type: none"> • Accountability <ul style="list-style-type: none"> ○ Evaluation ○ Enforcement/Incentive to watch videos ○ Coming to class/attendance • Dealing with a range of students • Increased interaction • More work—less flexibility (as it is very structured)



- Not knowing enough to know the challenges
- Time
- Convincing administration, colleagues and students that flipping is valid
- Insuring students embrace their roles
- Production values and learning how do this “right”
- Can you mix flipped and non-flipped
- “Excuse” to grow section size
- Does this change need for textbook
- Infrastructure challenge
 - Classroom not designed for ease of group work
 - Class size
- Risky
 - Evaluations
 - Time management
 - Departmental chair support
 - Tenure & promotions (is it valued enough to invest in it?)
- Flipped is more than a video
 - Overall methodology
 - Lack of access (students/faculty)
- Class Management
 - Video
 - Classroom
 - Activities
- Overcoming Poor Flipped Experiences
- ADA/Transcripts
- Accreditation
- Technology
 - Access
 - Maintenance of materials
 - Flexibility
 - Effectively
 - Integration of different technologies
 - Choosing the right tool/techniques
 - Back-ups
 - Training
 - Compatibility—different computers
- Loss of spontaneity in lectures
- Consistency
- Resources (cost)
- Responsibility on the learner
- What Content is fair game for exams?



	<ul style="list-style-type: none"> • How to engage distant classroom • Answering questions • Managing time with no constraints: student pre work, faculty post work • Team work required • Need large tool box to keep students engaged • Becoming skilled at doing this type of teaching & assessment • Assumes the students are at the same level and are ready for the material • Changing student habits • No feedback from students on lecture content/delivery at time of interaction • Course reengineering • It can be overkill • Make online material engaging • Creating applications with a clear connection to the online materials as well as providing for meaningful applications of the materials • Need to repeat for students who did not “prepare” • Applicable across the board • Availability of equipment for students to use in class. Not all students have laptops, etc. • Finding collections of online videos—so not recreating the wheel • Copyright issues
<p>9. Tools used for development of the training course (Moodle, Google classroom, You Tube channel...etc):</p>	<ul style="list-style-type: none"> • Video Creation Tools (for example Camtasia PC) • Video Hosting (for example Youtube) • Video Interaction (for example EduCanon or Office Mix) • Learning Management (for example Moodle, Google classroom)
<p>10. Do you have info for other existing e-learning guides as open source, to be shared within the LLL group?</p>	<ul style="list-style-type: none"> • http://www0.sun.ac.za/ctl/wp-content/uploads/2015/10/Flipped-Classroom-Field-Guide.pdf • http://www.academiccommons.org/wp-content/uploads/2014/08/Decker_AppendixA.pdf • http://rockethics.psu.edu/initiatives/ethics-education/ethics-degrees-course/open-online-courses/flipped-classroom-guide



	<ul style="list-style-type: none"> • http://www.rug.nl/e-learning/documenten/flippedclass-report-uk.pdf
11. Other comments:	<p>By "flipping" the classroom, many students will find that it will help them to learn more. One way it would help students learn is that they can focus on the more challenging work, which many find to be homework. By doing it in class, it is easier for them to understand it better because many times students do their homework not knowing what it really is about. Therefore, Universities around the world could think more globally to meet students' needs of learning with appropriate learning approaches.</p>

Project "D-clics numériques"

1. Country:	France
2. Name of the provider of e-learning:	La Ligue de l'enseignement
3. Formal or non-formal education:	Non-formal education
4. Target group:	final public: children 8-14 years; Training for adult education staff, who will then train non-formal education staff for children ; in 2017 a distance training for teachers in formal education is planned
5. Number of training courses offered:	4 courses for adult education staff per year : that means a total of 160 trained adult teachers in 2016; a total of 200 trained teachers in non-formal education for children in 2016; the aim is to teach a total of 6.000 facilitators till the end of 2018
6. Topic/area/field of the training course:	Both media literacy and education are key elements to accessing knowledge, information, and culture as well as leisure activities. For these reasons, media literacy and education have been important subjects within the network of La Ligue for many years The project "D-clics Numériques" wants to heighten the awareness of children for the challenges of the digital era and to demystify digital technologies.



	<p>The project is constructed around three main axes:</p> <ul style="list-style-type: none"> • Workshops on the discovery of digital technology, i.e. on how code works through video games or on one's rights and obligations when publishing on the internet, • Workshops on the understanding of digital technology, i.e. on programming robots or applications, on video making and editing or on how to set up an online journal • Workshops on the accessibility of digital technology by promoting Open Source Technology, material that is inexpensive and making previous WS productions (video games, applications, journals, etc.) accessible to all.
<p>7. What is innovative (if applicable):</p>	<ul style="list-style-type: none"> • The tools are available free of charge online • The learning sessions are already planned and ready to use, they can be edited by the users depending on their needs • software is open source and hardware is accessible to a very low price • in a playful way, children are led to think about the challenges of a digital society • during the training, the education staff is living the experience himself • In addition to the described training, there are volunteers who act as « digital mediators ». These trained volunteers take action going into in schools, youth centres, libraries etc. in order to support kids and young people dealing with digital media.
<p>8. What is the challenge/problem (if applicable):</p>	<ul style="list-style-type: none"> • The biggest challenge was the creation of the robot (for the computer programming class) that didn't exist and had to be created with the help of one of our partners • Another challenge is the organization/ logistics of the training of 6000 facilitators by the end of 2018
<p>9. Tools used for development of the training course (Moodle, Google classroom, You Tube channel...etc):</p>	<p>Distance learning course in 2017: national platform for teachers of formal education : "M@gister"</p>



<p>10. Do you have info for other existing e-learning guides as open source, to be shared within the LLL group?</p>	<p>Web-conferences and online courses inside the Ligue network via the tool "Adobe connect" Website of the tool: http://www.adobe.com/products/adobeconnect.html</p>
<p>11. Other comments:</p>	<p>Even if the final public of this project are children, the training is dedicated to adults who potentially also train other adults to whom they can transfer the acquired knowledge. Additionally, they will also be able to apply their new skills in their own professional life. Website of the project D-Clics numériques: http://d-clicsnumeriques.org/</p>



National Institute for Training and Research on Continuing Education

1. Country:	France
2. Name of the provider of e-learning:	INFREP (National institute for training and research on continuing education) / Ligue de l'enseignement
3. Formal or non-formal education:	Non-formal education
4. Target group:	The beneficiaries of the project are e-facilitators. These are professionals fighting against the digital gap. They work in many different areas in order to be close to their main target groups: young people, job seekers, elderly people or disadvantaged people. They should have very broad knowledge, ranging from technical (ICT) to pedagogical skills. Thus, the target group is adult education staff working in non-formal education.
5. Number of training courses offered:	For the moment, one training module consisting of 5 activities has been developed (1 activity = 5 hours of training). The resources for the training will be available for the project partners ready to be used for their own staff or for the public they are working with.
6. Topic/area/field of the training course:	<p>The goal of this project is the introduction of the public to the use of ICT and this way fight against the digital gap. After defining the profile of an e-facilitator, a training course for becoming an e-facilitators is designed. In the end this training course will be "tested" (feedback) by experts in the development of distance education training.</p> <p>The adult educators (e-facilitators) who followed this distance training will afterwards be able to provide high quality training and/or pedagogical material to adults wanting to enhance their TIC skills.</p>
7. What is innovative (if applicable):	In the context of an European partnership, a common profile and definition of the profession of "e-facilitator" is developed on a European scale.



8. What is the challenge/problem (if applicable):	The profession “e-facilitator” had to be defined in detail and a training on a transnational level had to be developed.
9. Tools used for development of the training course (Moodle, Google classroom, You Tube channel...etc):	Moodle, guide for e-facilitators



TECRINO Project

The example presented below refers to an e-learning platform developed by the **TECRINO** project under Leonardo Projects within the European Lifelong Learning Programme. The main objective of TECRINO Project is the improvement of the educational performance. It assumes that innovation and creativity can be taught, and aims to develop appropriate courseware for improving the awareness of teachers and students at university level about the mental processes and educational techniques required by the concept of education for creativity.

1. Country:	Spain / Cyprus / Croatia / Romania / Poland / Portugal
2. Name of the provider of e-learning:	Transnational consortium formed by: Inercia Digital S.L. (ES), Fondo Formacion Euskadi (ES), RTD Talos (CY), University of Zagred (HR), The "Dunarea de Jos" University of Galati (RO), Syntea SA (PL), Epralima Vocational Training School (PT), Hamag-Bicro (HR)
3. Type of education:	Informal
4. Target group:	Trainers, managers, guiders. Training professionals that will develop the competences linked to innovation in their daily work with their students. Final public: University Students
5. Number of training courses:	One course: Teaching Creativity Engineering. Composed by: Guide for trainers, introduction to the course and 6 chapters with formative content and practice exercises.
6. Topic/Area/Field of the training:	Main objective: Promotion of employability, both quantitatively and qualitatively, to match the requirements of the labour market. TECRINO Project addresses the key competence #5 of the European Reference Framework "Key Competences for Lifelong Learning": Learning to learn.
7. What is innovative:	<ul style="list-style-type: none"> • Few projects in <i>systematic education for creativity and innovation</i> within the European LLP framework. Existing projects do not cover all the aspects of this topic. • Unlike previous similar projects, TECRINO attempts not just to teach creativity techniques, but to teach for creativity, developing the general ability to solve problems in a creative way. • The course is available free of charge online



<p>8. Process of implementation:</p>	<ul style="list-style-type: none"> • Constitution of the management and quality organs and making the working, quality and valorisation plans operational. • Design and verification by experts of the pedagogic itinerary and the supporting didactic resources: Development of the educational content of the course as reusable digital objects in several EU languages, integrate it in an e-learning platform. • Pilot experience for the validation of the pedagogic itinerary and the supporting didactic resources. • Mediatisation and Edition of the resulting products. • Dissemination and Exploitation of training innovation product.
<p>9. What is the challenge/problem:</p>	<p>The evaluation and certification process in informal education. Finally, Vocational Competence Certificate (VCC) was the system used to certificate competences acquired in creativity by the training course.</p>
<p>10. Tools used for development of the training course:</p>	<p>International e-learning platform Moodle: Teaching creativity in engineering. The course is available in different EU languages: English, Spanish, Romanian, Croatian, Greek, Polish and Portuguese. How to access:</p> <ul style="list-style-type: none"> - Website of the project: http://tecrino-project.eu/ - E-learning page - Free registration as user - Access to Moodle and inscription in the course



Project: E-learning in an adult education center

1. Country:	Germany
2. Name of the provider of e-learning:	Ada-und-Theodor-Lessing-Volkshochschule Hannover
3. Type of education:	Formal and informal
4. Target group:	Adults
5. Number of training courses:	Several
6. Topic/Area/Field of the training:	Languages, German for foreigners, IT Competences, social studies
7. What is innovative:	The implementation of on own learning platform in an integrative concept under participation of employees
8. Process of implementation:	<p>We will describe the steps to be carried out for implementing an Online Learning Platform successfully. The VHS Hannover started this process in 2012 and has run the platform since that time.</p> <ol style="list-style-type: none"> Decision in the organization to implement online learning in the programme and to do it with an own learning-platform Establishing a steering committee In that time the VHS worked in 4 departments (languages, active living, integration, school and vocational training). Each department sent one staff member in the steering committee. Which departments should be involved in the process? As mentioned above we work in a wide range of education and training. The department “language learning” played a very important role, especially the programme for learning German as foreign language has contributed very engaged to the process. Beside of the pedagogical departments the department “financial and accounting”, the technical service and the director have been involved. Market analysis: which products are available?



We checked a range of platforms with different user concepts, which are common in Germany and are used mainly in the further education (e.g. universities).

5. **Identification of requirements and specifications (needs assessment, specification sheet).**

We carried out a questioning in the whole organization. Especially the department “language learning” described their requirements very concrete. The focus for choosing the right product should be that a lot of publishing houses for schoolbooks offer online-modules related to the school book, which should be integrated in the learning-platform easily. In addition the learning platform should be used as communication system between trainers and participants and for communication in the class.

6. **Inviting provider to present their products.**

We invited a couple of providers, hoster but also institutions which offer complete platforms.

7. **Developing the concept.**

We focused mainly on the use for blended learning, as we would need the platform in addition to our face-to-face courses. But distance learning should be offered too.

8. **Choosing the right product and final decision about it.**

We chose the OPENSOURCE Moodle. The reasons have been to costs (open source), the experiences in other institutions and mainly that it fit perfect to our requirements and specifications. The online material offered by the publishing houses is compatible to Moodle, the use of Moodle is not very complicated, communication in class rooms, in trainer-rooms and between trainer and participants is well organized, distance learning may be offered.

9. **Analysis of costs:**

Expenses for hosting, for support, for administration, for implementation, for development of learning material, for buying modules and the training of staff and trainers have been calculated. Those revenues could be expected: fees, cooperation with other users, who will rent a part of the platform. Other Volkshochschulen in the region and departments of the municipality of Hannover paid for using a part of the platform under their own responsibility but using



our knowledge and support. Nevertheless we knew that we will not be able to refinance the platform in total. But however we decided to start, because it would be an important step into the future of digital learning.

10. Composing team of administrators.

Three employees set up the team: one technical staff member and 2 pedagogues.

11. Development of technical basis.

We have chosen a system, which has been delivered by a hoster, who will be responsible for installation and maintenance of the software.

12. Installation of system

Installation of software and application which will be needed to fit our requirements.

13. Piloting

We established online classrooms and some online-courses for the piloting. During the testing phase the availability, the operational safety and the performance have been checked permanently.

14. Installing the first regular courses

The department „Language learning“ set up the first regular online class-rooms and courses. They started with courses for distance learning in French and Blended learning in German as foreign language. The advantage for language learning has been that their existed a wide range of online-courses in a good quality, developed by the publishing houses. For the vocational training an IT training the situation has been more difficult because in these areas the subjects are changing very often (e.g. new software-version in IT, new taxes for financing and accounting). So the publisher of learning software must guarantee that they would update their courses frequently on the one hand but to provide it for low (or no) costs on the other. Thus they started late to develop those materials.

15. Training of staff and trainers.

We accompanied the process of implementation of the Moodle platform with training on the work with the platform for beginners and later for advanced ones. The training has been offered for free and has been carried out by an external professional.



	16. At the end of the implementation phase the process and the result have been evaluated well .
9. What is the challenge/problem:	As above mentioned the challenges are <ul style="list-style-type: none">• The adaption of the administrative system of an adult education center with course fees to the system “e-learning”• Motivating the trainers to use the new technology for creating an added value in their courses
10. Tools used for development of the training course:	International e-learning platform Moodle: https://moodle.vhs-hannover.de/



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