Work Package 3

Implementation of LLL Strategies and Policies in Partner Universities

Coordinating Institution

Technical University of Denmark

Editors

Birgitte Lund Christiansen

Line Katrine Harder Clemmensen

Sidsel-Marie Winther Prag

Paul Fischer

Work package 3

Contents

Overview

This document contains the contributions to Work packes 3.1 through 3.5. Some additional material may be found on the MyMoodle platform, especially the material for teacher training courses. Also the original files of which this document is composed are located there.

Overview of Subpackages for Work Package 3 and the Coordinating Institution

1. LLL University Centres, DTU
2. LLL training for staff, DTU
3. Cross Country LLL Professional Networks, KNURE
4. LLL Support Technology
5. LLL Teaching Methods

Work package 3.1 - LLL University Centres

Coordinators: Line Clemmensen and Paul Fischer, Technical University of Denmark

Scenarios for Establishing LLL-centers

The way to establish LLL-centers and the functions they have to provide depend on:

- The local infrastructure
- The legal conditions
- The target group

Based on the information received from the partners we have identified three scenarios to organize LLL-centers. The collected Information is summarized in tabular form in the file *Feedback_table_V2.xlsx* and the complete information is collected in *WP31_Feedback.pdf*.

In the following we will present the three scenarios of different ways to organize an LLL center. The scenarios were constructed based on examples from the participating countries, and references to the examples of practices (found in Appendix) will be given. Each example from the participating country has also been categorized into one or two of the given scenarios. The scenarios are:

1. A centralized LLL center, which handles all the functions.
2. A LLL center, which handles some functions and decentralizes other functions.
3. No LLL center, all functions are decentralized to other units.

Scenario 1: A centralized LLL center, which handles all the functions.

In the first scenario an LLL center takes care of almost all functions. In some cases existing units may supply additional support, such as an IT Support center supplying IT technology for the LLL courses. All other functions such as: Market analysis, marketing, administration of students, administration of course fees, assignment of staff to courses, pedagogical support, exams and diplomas would be handled by the LLL center. This organization form is for example seen at KNURE. Quality assurance of the courses is in their case handled by the teachers and their Departments. ONPU also has a very similar structure, though with slightly more decentralization.

Examples that could fit in this scenario: KNURE, ONPU, ISU, VSU, NTUU, RAU, TSNUK

Scenario 2: A LLL center, which handles some functions and decentralizes other functions.

In the second scenario a LLL center handles parts of the functions, but other functions are decentralized to other units such as traditional university departments or other specialized units. In the ONPU example we see a strong LLL center with a decentralization to specialized training units in the different university departments. For example the IT support is here handled at department level, and the training units cover the department side of most of the functions. Furthermore, procedures for staffing are handled at department level and exams are handled by the teachers. In the DTU example, we also see a strong LLL center with decentralized functions for staffing and for running exams, though no special training centers are available at department level. The DTU case also has different LLL activities handled in different ways. Part time MSc students are always handled at the LLL center, whereas industrial courses could be handled both at the LLL center or at the department level.

Examples that could fit in this scenario: DTU, ONPU, TeSaU, ISU, VSU, ANAU, UR, NTUU, GSU, TSNUK

Scenario 3: No LLL center, all functions are decentralized to other units.

The last scenario is where the LLL activities are run without a dedicated LLL center, but where other units are responsible for the related functions. The LNU example illustrates such a case, and we will use their example to describe how such functions could be handled at other units (though several options are possible here). The market analysis and marketing is handled at Faculty or Department level. The business model is handled according to existing rules for regular students, or by agreement at the department level. LNU has a centralized IT unit as well as a intranet which they can use for technical support and as a IT technology platform. They also have a centralized office for student affairs, which can be utilized for administration of enrolment, exams, and diplomas. Staffing, facilities, educational planning, pedagogical support, and quality assurance are handled at department level (possibly within teams or by the teachers).

Examples that could fit in this scenario: LNU, UG, GSU

Checklist for Center Development

Most of the following functions will have to be supplied/supported by any LLL-center. We describe the functions and give some examples of implementation.

1. **Market Analysis:**
   - Who are the customers? Companies, public sector, individuals. Who is willing to pay for the education?
   - What are the areas to focus on? Which topics are needed, what are the economic/societal effects?
   - How large is the market? How many students are expected?
   - We furthermore refer to WP 2.5 (Company Cooperation Strategies)

2. **Marketing / announcement**
   - How is the offer advertised? Print media, web-platforms, direct contact to potential customers, other media?

3. **Business models**
   - What are the cost factors? The attached spreadsheet will cover all cost factors in most cases. Add or delete points after you specific needs.

4. **IT technology**
   - Which kind of IT-support is needed for the intended course structure? Think especially of hand-ins.
   - What is available and is the capacity sufficient to handle the extra demand?
   - Which platforms will be used?
   - Who trains the teachers to uses specific software/platforms?

5. **Technical support for production of course material**
   - What kind of material has to be produced? Notes on paper, slides, electronically available material, videos, podcasts, interactive tests/quizzes, exams.
   - What is needed to produce the material? Printers, cameras, software for video screen-capturing, software for video editing.

6. **Administration of students: enrollment, diplomas**
   - Can the existing mechanisms be used or does one have to create special procedures?

7. **Administration of financial matters (pricing, invoicing)**
   - Who determines the prices?
   - Who receives the money?
   - Which cost factors have to be considered? The spread sheet use by DTU for these calculations is attached.

8. **Facilities, room scheduling**
   - Classrooms
   - Rooms for web teaching/e-learning/video conferencing
   - Rooms for exams

9. **Procedures for staffing of courses**, incl.
   - Hiring external lecturers (as a supplement)
   - Authority to assign university teachers to teach if there is a demand… and/or having incentives (rewards)

10. **Advice / counseling to the customers about course / educational planning**
   - Who can give advice to customers? Administrative staff? Teachers/course leaders? How can customers get into contact with the staff? By phone, by mail, by personal appointments?

Work Package 3.2 - Training for Staff

Coordinators: Birgitte Christiansen and Sidel-Marie Prag, Technical University of Denmark

Preambel

A package of materials has been produced to support the partner universities in the Tempus project to train faculty members (university teachers) in designing and implementing high quality LLL courses. The package provides resource material for persons (typically educational developers) who are responsible for courses for faculty members (university teachers), enabling the faculty members to develop and teach LLL courses within their field of expertise.

The package contains the materials that can be changed according to local needs and preferences. Therefore, the documents are made available in editable form, as Word (*.docx) and Powerpoint (*.pptx) formats.

The package includes the following materials:

Description of the course "Development of Life Long Learning Courses" (= Teachers training course)

A generic description of a training course for faculty members (university teachers) who will develop lifelong learning courses within their own field of expertise. This teachers training course consists of two modules of 1 + ½-1 days. The course description specifies prerequisites, course and learning objectives, content (main points), teaching methods and learning activities, the participants' preparation and home work between the two course modules.

Target group: Participants in the course "Development of Life Long Learning Courses" (= faculty members / university teachers who will develop LLL courses) – after the necessary adjustments have been made by the persons who are responsible for the course.
File name: Tempus_WP_3.2_Doc_1_Teachers_Training_Course_Course_description.docx

Course plan for the course "Development of Life Long Learning Courses"

A generic course plan including a description of what the instructor should do before the course starts and between the two course modules. It also includes a detailed time schedule for the course with specifications of content and teaching and learning activities for each time slot.

Target group: Educational developers who are responsible for the teachers training course
File name: Tempus_WP_3.2_Doc_2_Teachers_Training_Course_Course_plan.docx

Powerpoint presentations for the course "Development of Life Long Learning Courses"

Two sets of powerpoint slides for the course "Development of Life Long Learning Courses" with instructor notes (Module 1 + Module 2).

Target group: Educational developers who are responsible for the teachers training course.
File names: Tempus_WP_3.2_Doc_3B_Teachers_Training_Course_Module_1_with_notes.pptx
Tempus_WP_3.2_Doc_3B_Teachers_Training_Course_Module_2_with_notes.pptx

Supporting documents to the course "Development of Life Long Learning Courses"

1.1 Sample questionnaire
The questionnaire can be used for collecting background information of the course participants of the course "Development of Life Long Learning Courses".
Target group: Educational developers who are responsible for the teachers training course
File name: Tempus_WP_3.2_Doc_4A_Teachers_Training_Course_Questionnaire.docx

1.2 Document on writing learning objectives / learning outcomes
The text document (pdf format) is intended to be used as preparation by the participants in the course. The topic "Learning objectives" is part of first course module (see 2. Course plan for "Development of Life Long Learning Courses"). The document is printed from
http://owww.brookes.ac.uk/services/ocsld/resources/writing_learning_outcomes.html
Target group: Participants in the course "Development of Life Long Learning Courses" (= teachers who will develop LLL courses)
File name:
Tempus_WP_3.2_Doc_4B_Teachers_Training_Course_Carroll_Writing_learning_oucomes.pdf

1.3 Template for course description
Can be used by the course participants as a template for description of the LLL course(s) that the participants develop during the course "Development of Life Long Learning Courses".
Target group: Participants in the course "Development of Life Long Learning Courses" (= teachers who will develop LLL courses)
File name:

Tempus_WP_3.2_Doc_4C_Teachers_Training_Course_Template_for_Course_Description.docx

Development of Life Long Learning Courses

A Training Course for Teachers and Educational Consultants

Target Group
University teachers and educational developers involved in the development of Life Long Learning courses.

Prerequisites
Experience with / knowledge about teaching and course planning at universities - as a teacher or educational developer

Duration
Module 1: 1 day
Module 2: ½ - 1 day

Time and place
Module 1: *Oct 5, 2015 9 am – 4.30 pm at [address/room]*
Module 2: *Oct 16, 2015 9 am – 12.30 / 4 pm at [address/room]*

General course objectives
The course aims at providing a framework for university teachers and educational developers for development of LLL courses. Based on fundamentals about adult learning and special considerations relating to teaching adults in LLL settings, the participants will use a structured method to work with the development of specific courses of their own choice. Therefore, the course can be used as an element in the process of concrete course development. Besides, the participants can apply the method to the development of other LLL courses later.

Learning objectives
A participant who has met the objectives of the course will be able to:
• identify special fields of attention related to LLL courses - as compared to teaching young full time students
• use a structured approach to the development and description of LLL courses
• define operational learning objectives for a course
• make appropriate choices regarding planning and implementation of LLL courses and programmes, including
    • teaching methods
    • learning activities
    • assessment methods
    • course evaluation
• give reasons for these choices
• make a course description that is meaningful for the target group and provides the information that the participants need before the course start

Content
Introduction
- What is LLL? Types of LLL courses and education programs
- Adult learners in LLL

Teaching adult at LLL courses
- Goals and results
- Learning objectives

Points of attention / pieces of advice regarding how to plan and organise
- the learning proces
- assessment and evaluation

Good practice examples of existing LLL courses (onsite/online/blended learning)
Case-based workshop on overall course design of one or more courses (in groups)
Home assignment on detailed course design (individually or in groups)
Discussions and feedback on course design
Conclusions

Teaching methods and learning activities
Lectures with dialogue and small group discussions in-class
Case-based groups work
Poster production and presentation
Peer assessment in groups
Class discussions
Home work:
- Reading assignment
- Practical course design assignment

Preparation before course start
1. Reading assignments:
- "Writing Learning Outcomes"by Jude Carroll, Oxford Brookes University, from
  http://owww.brookes.ac.uk/services/ocsld/resources/writing_learning_outcomes.html
- "Teaching Methods for LLL courses" = *document produced as part of the Tempus LeAGUe
  project (WP 3.5 Teaching Methods).*
2. Answer a questionnaire[1]

Home work between module 1 and module 2
Detailed course design (individually or in groups), based on the overall design produced and
presented at Module 1, documented as a detailed course description, a shorter course description
written for the target group, and a course plan.

---

[1] Could be a few answers to a few questions about the participants' background and relevant
prerequisites, exchanged by mail – See example in Appendix

Assessment

Evaluation of

- *Written documentation of detailed course design*
- *Oral presentation of detailed course design*
- *Contributions to peer review process of other participants course design*

Practical information

Meals and beverage will / will not be supplied.
Meals and beverage can be bought at the cafeteria…

Other remarks

The participants can benefit from attending the course together with one or more colleagues who are involved in the development of the same – or a similar – LL course(s) that can be used as a basis for the case-based course development during the course.

Responsible:

Name + contact information

Comments to the course description

Information written in *italics* should be changed to local conditions.
All other parts of the course description may be adjusted to local conditions and decisions.
"Teachers Training" is used as a general term, meaning pedagogical education of teachers / staff.

Development of Life Long Learning Courses - Suggested course plan

A Training Course for Teachers and Educational Consultants

Before the course starts

Inform the participants about the preparations they have to do before the course starts:
3. Reading assignments:

- "Writing Learning Outcomes"by Jude Carroll, Oxford Brookes University, from
http://owww.brookes.ac.uk/services/ocsld/resources/writing_learning_outcomes.html
- "Teaching Methods for LLL courses" = *document produced as part of the Tempus LeAGUe project (WP 3.5 Teaching Methods).*

4. Answer a questionnaire[2]

Module 1: 1 day

Time	Content	T&L methods / Activities
9-9.30	Introduction to the course • Course program • Context / background • General course objectives • Learning objectives for the course • Assessment of the course / diplomas Presentation	Course leader presents with slides - with questions from participants. Participants present themselves – or each other[3].
9.30-10	What is LLL? Types of LLL courses and education programs Specifics of adults and teaching adults in LLL	Course leader presents with slides - including in-class brainstorm in small groups on the differences between teaching adults at LLL courses and full time, young students. Summary in class, lead by course leader with input from participants.
10-10.15	Break	
10.15-11	Goals and results	Course leader presents with slides. Include dialogue with participants e.g. about learning objectives – involved them in finding examples of good learning objectives = observable actions, and "no-go" objectives as "understand…", "know…" If participants do not have experience with using learning objectives, you may spend more time on this topic and include an exercise based on an example of learning objectives from a course description that is relevant for the participants[4]. Let the participants analyze the example and try to determine which taxonomy level are addressed by the individual learning objectives. Summary in class, lead by course leader with input from participants.
11-11.10	Break	

---

[2] Could be a answers to a few questions about the participants' background and relevant prerequisites, exchanged by mail – See examples of questions in Questionnaire provided in separate document (Tempus_WP_3.2_Doc_4A_Teachers_Training_Course_Questionnaire.docx)

[3] A good presentation form that works as an "ice-breaker" is to give participants 3 +3 minutes for presentations in pairs. They present themselves to the person sitting next to them, and vice-versa, and afterwards, they present the person that has presented himself/herself to the class.

[4] Search for examples internationally, if you find it difficult to find good examples

11.10-11.30	Point of attention Points of attention / pieces of advice regarding how to plan and organize • the learning process • assessment and evaluation	Course leader presents with slides. Invite the participants to contribute with examples from their own experience as teachers or as participants in LLL courses.
11.30-11.45	Introduction to the workshop on course development Group division and practical instructions	Course leader presents with slides - with questions from participants. Introduce the required output = key words on posters – that will be presented to the class by the end of the day, and that everybody should comment on (= "peer assessment").
11.45-12.30	Workshop in groups on course development	Participants work in groups of 3-5 on 1 (or more) selected course(s). Course leader is available for questions, walks around and listens and helps clarify questions on the process.
12.30-13.15	Lunch	
13.15-14	Presentation of experiences with 1-2 LLL courses, with / without e-learning / blended learning	Guest speakers present their experiences, supported by own material. Course leader ensures that the participants get chanced to ask questions.
14-14.10	Break	
14.10-15.30	Workshop in groups (continued)	Participants work in groups. Course leader is available for questions, walks around and listens and helps clarify questions on the process.
15.30-16.15	Presentation of results from workshops on course design	Poster presentation, structured by the course leader[5]. Course leader will facilitate that the participants comment on / ask questions to the group presenting the poster. The course leader can add comments and questions.
16.15-16.30	Introduction to home work	Course leader presents with slides.

Home work between module 1 and module 2

Detailed course design (individually or in groups), based on the overall design produced and presented at Module 1. The design should include

• a full course description, based on the points listed for the workshop on day 1 plus a description of the content in main points.

---

[5] Each group should have 15-20 minutes for presenting their poster and receiving feedback (= comments and questions). Depending on the number of participants, the poster presentations can be done in plenum, or divided so that 2-3 groups present their results to each other and receive feedback from each other. In the last case, there should be a course leader/facilitator for each parallel session.

- a shorter course description for the target group of the course, You may use the course description of this course from the Tempus project as a template (see separate document = Tempus_WP_3.2_Doc_4A_Teachers_Training_Course_Questionnaire.docx)
- an overall course plan containing schedule, content and T&L methods / activities for the course modules – in the form used in this course plan:

Time	Content	T&L methods / Activities
9-9.30	Introduction to the course • Context / background • General course objectives • Learning objectives for the course • Course program Presentation	Course leader presents with slides - with questions from participants. Participants presents themselves – or each other.

You may ask the participants to send their documentation of detailed course design to you some days before Module 2.

Module 2: ½ - 1 day[6]

Time	Content	T&L methods / Activities
9-9.30	Introduction to Module 2 A brief feedback from the participants on their home work Introduction to the workshop on detailed course design Group division and practical instructions	Course leader presents with slides - with questions from participants.
9.30-11.30	Workshop in groups on detailed course design	Group of 3-5 persons. In each group, 2-3 different courses should be represented. For each course represented, about 45 minutes will allocated to presenting the detailed design and getting feedback from the other group members. Main points should be written on a poster and presented for the class
11.30-11.45	Break	
11.45-12.45	Presentation of outcome of workshop	Each group will present main points from the group discussions. Course leader facilitates the process and invite participants from other groups to comment and ask questions. Course leader sums up on important conclusions.
12.45-13	Conclusion Information about assessment, diplomas etc.	Course leader presents with slides. Information about assessment will depend on which kind of assessment is decided.[7]

Life Long Learning Course Development Workshop

See Powerpoint slides, Questionnaire., Oxford Brookes text and Template on MyMoodle.

---

[6] You may add more subjects of more local or discipline specific nature - or add one or more other examples of "good practice" LLL courses presented by guest speakers - and thus expand Module 2 to a 1 day workshop.

[7] The assessment could be based on a final version of the written documentation of detailed course design or on an oral presentation of detailed course design

Work package 3.3 – Cross Country LLL Professional Networks

Coordinator: Ilona Revenchuk, Kharkiv National University of Radioelectronics

Overview

The network approach is somewhere between the description by individual elements and the description by big groups, bridging the two of them. In a certain sense, network try to explain how a set of isolated elements are transformed, through a pattern of interactions, into groups and communities. In all cases where this pattern is relevant, the network approach provides essential insights.

Sociology has classified a broad range of possible links between individuals (table 1). The tendency to have several kinds of relationship in social networks is called multiplexity. But this phenomenon appears in many other networks: for example, two species can be connected by different strategies of predation, two computers by different cables or wireless, connection, etc.

Table 1 –A classification of ties in social networks.

| Similarities			Social relations				Interaction	Flows
Location	Membership	Attribute	Kinship	Other role	Affective	Cognitive		
e.g.,	e.g.,	e.g.,	e.g.,	e.g.,	e.g.,	e.g.,	e.g.,	e.g.,
Same spatial and temporal space	Same clubs	Same gender	Mother of	Friend of	Likes	Knows	Six with	Information
	Same event	Same attitude	Sibling of	Boss of	Hates	Knows about	Talked to	Beliefs
				Student of		Sees as happy	Advice to	Personnel
				Competitor of			Helped	Resources
							Harmed	

Information technology provides a new and powerful way to measure interaction between people. Frequent phone calls and emails between two individuals, or friendship in virtual social networks like Facebook or LinkedIn, indicate a stable relationship and therefore an edge. More and more companies exploit the social networks of their customers to find such information. For example, telephone companies are reported to target "influential" individuals with offers and other strategies: these are the customers who, when they change company, trigger similar changes in their close connection.

In general, a network with heterogeneous connectivity has a set of clear hubs. When a graph is small, it is easy to find whether its connectivity is homogeneous or heterogeneous (scheme 1). In the first case, all the nodes have more or less the same connectivity, while in the latter it is easy to spot a few hubs. But when the network to be studied is very big (like the Internet, the Web, metabolic networks, and many others) things are not easy.

Scheme1

(A)   (B)
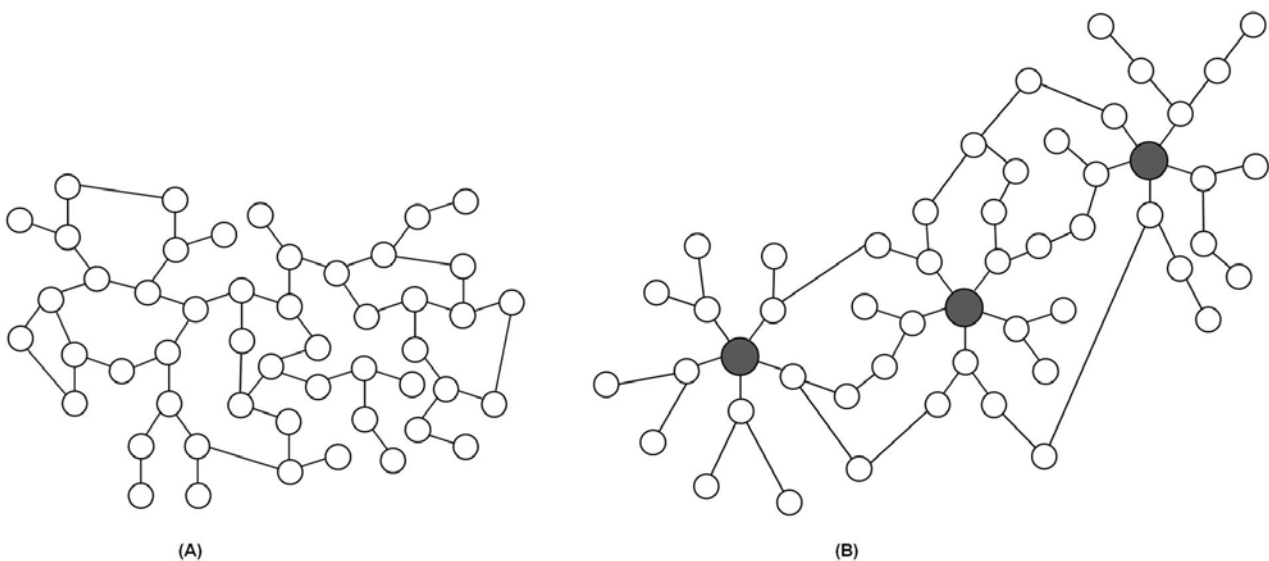
A homogeneous network (A), where all nodes have more or less the same degree, compared with heterogeneous one (B), where highly connected nodes (hubs) are present.

A simple rule establishes how new nodes are linked: incoming vertices prefer old ones that already have many links. This mechanism is called preferential attachment (scheme 2). In principle, new vertices can attach to any of the old ones, but the higher the degree of an old node, the higher the probability of attracting a new one. Occasionally, less connected nodes will receive new links, but the most of time hubs will be much more attractive.

Scheme 2
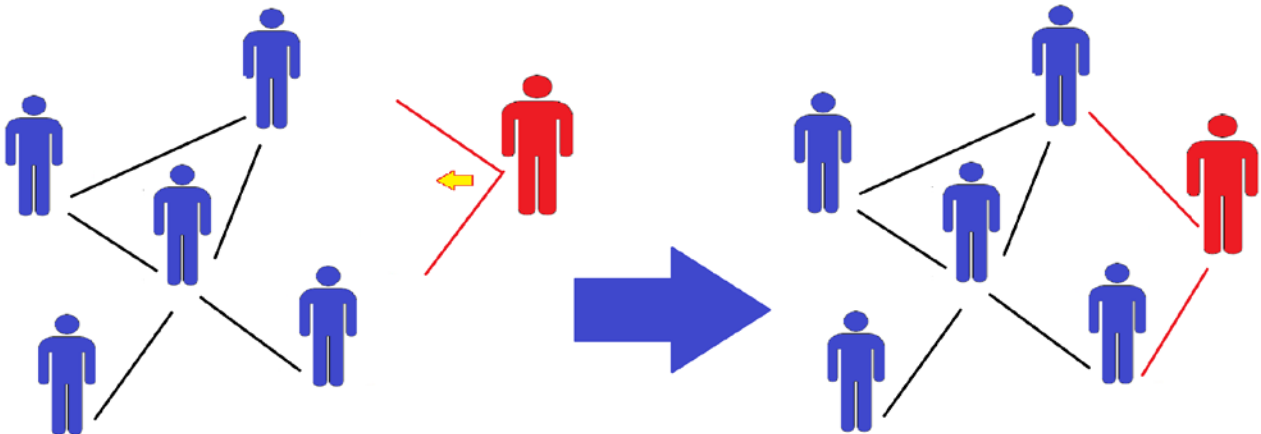
In the preferential attachment mechanism for network growth, new nodes connect preferentially with old nodes that have a high degree.

General Description of the LLL Expert Network

Along with the framework of Core Competences for LLL Course Providers the LeAGUe project built up an **LLL Expert Network** comprises of higher education institutions/providers and key players in the field of LLL learning within EU and the partner countries – Armenia, Georgia and Ukraine.

Purpose
Its main purposes are:
- to provide a forum for exchange of professional expertise, knowledge transfer and good practice examples on the development of high quality LLL courses in the areas of *Agriculture*, *IT Education, Public Health and Nursing,* and *Teacher Training;*
- to promote the provision of permeable, accessible, career-oriented, and flexible learning pathways for individuals;
- to contribute to enhancing the progress of higher educational reforms in the partner countries.

Objectives
The LLL Network Framework has the following **objectives**:

1. **Capacity development:** to build the capacity of educational providers and teaching professionals from the partner countries (Armenia, Georgia and Ukraine) to design,

manage and implement LLL courses that correspond to the immediate labour market and social needs.

2. **Strengthening partnerships:** to facilitate and improve the development, management and implementation of LLL course in Armenia, Georgia and Ukraine by stepping on the experience of the established partnerships and cooperation within the LLL Network.

3. **Knowledge management:** To develop and implement knowledge management systems in the area of LLL course provision that ensure access to the best international knowledge in the field and establish a set of competences that all institutions providing LLL courses need to develop in order to successfully react to unexpected social and economic changes on local, national and European level.

STRUCTURE

The leading structure of the LLL Expert Network comprises of an Executive Board which includes member of the LeAGUe project

ROLES OF EXPERTS

The **role** of the LLL Expert will be to:

- **provide support** in the design, organization, management, administration, implementation and promotion of high quality LLL courses in the partner countries;
- **act as mentor or coach** to interested educationalists in the development of their professional knowledge, skills and competences for LLL course provision;
- **offer guidance** to educationalists, administrative and quality assurance staff at university level to successfully communicate with target group end users of LLL courses and key stakeholders on national and international level.

Depending on the professional qualification and gained experience in LLL course provision, the expert members of the LLL Expert Network will play at least one of the specified roles.

THEMATIC AREAS OF EXPERTISE COVERED

- Agriculture;
- IT education;
- Public Health;
- Nursing;
- Teacher Training.

WHO CAN PARTICIPATE?

The LLL Expert Network is open to:

- interested educational practitioners who have deep knowledge and expertise into the design, organization, management, administration, financing, and quality assurance of LLL courses on national and international level;
- policy and decision-makers who have a say in the development of national and/or EU educational policies.

General conception of the Group "LLL Expert Network" in professional network LinkedIn

All communication will take place within the **"LinkedIn"** network and**/or** in a separate group **"LLL Expert Network?"in "LinkedIn"**. See below.
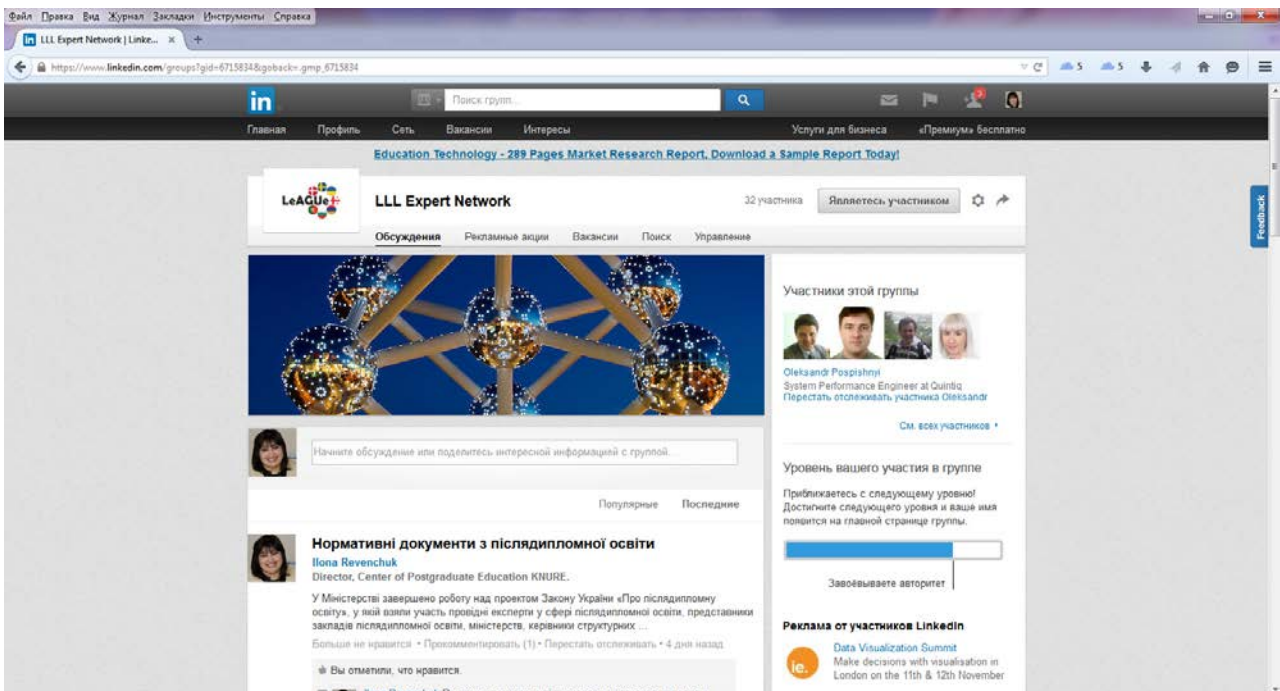
(0)

Therefore all Experts should have an account on the "LinkedIn" network.

The group of experts may invite other experts.

The purpose of the network "LLL Expert Network" - informative - Base of Universities, of LLL centers and experts from these universities in LLL field.

Inviting People to Join a Group or Subgroup in LinkedIn Network

How do I invite someone to join a group?

You can spread the word about a group by clicking the ⤤ Share icon near the top right of the group's *Discussions* page.

- Open groups can be shared on LinkedIn, Facebook, and Twitter.
- Members-only groups can be shared on LinkedIn.
- If the group manager has enabled members to send direct invitations, you'll see that option as well.

Once you click the ⤤ Share icon, select **Share on LinkedIn** from the dropdown menu. From there, you can post an update, post to groups, or send to individuals.

How to use interface of the "LLL Expert Network" web-site

A. Roadmap for users
B. How to register University.
C. How register LLL Expert from University.
D. How expert can enter on website and edit your profile.
E. How to edit information about University.

Important:
If you didn't receive key-file, please check you e-mail (spam).

If you work with the site "LLL Expert network" you should be active in LinkedIn network.

The first - sign in to LinkedIn, the second - sign in to "LLL Expert network" (Because, LinkedIn have a problem with validation data from external websites).

Main page (1)

Beginning

There are 3 types of users in this web-site:
Main page – enter by click on Logo
✓ Visitors;
✓ University;
✓ Experts.

A. Roadmap for users

1. User has access to the list of all Universities in country after choosing the country, for example – **Ukraine (see img.1)**.
2. You can see information about **Ukrainian Universities and links to LLL Department / Organizations with e-mail addresses (see img.2)**.
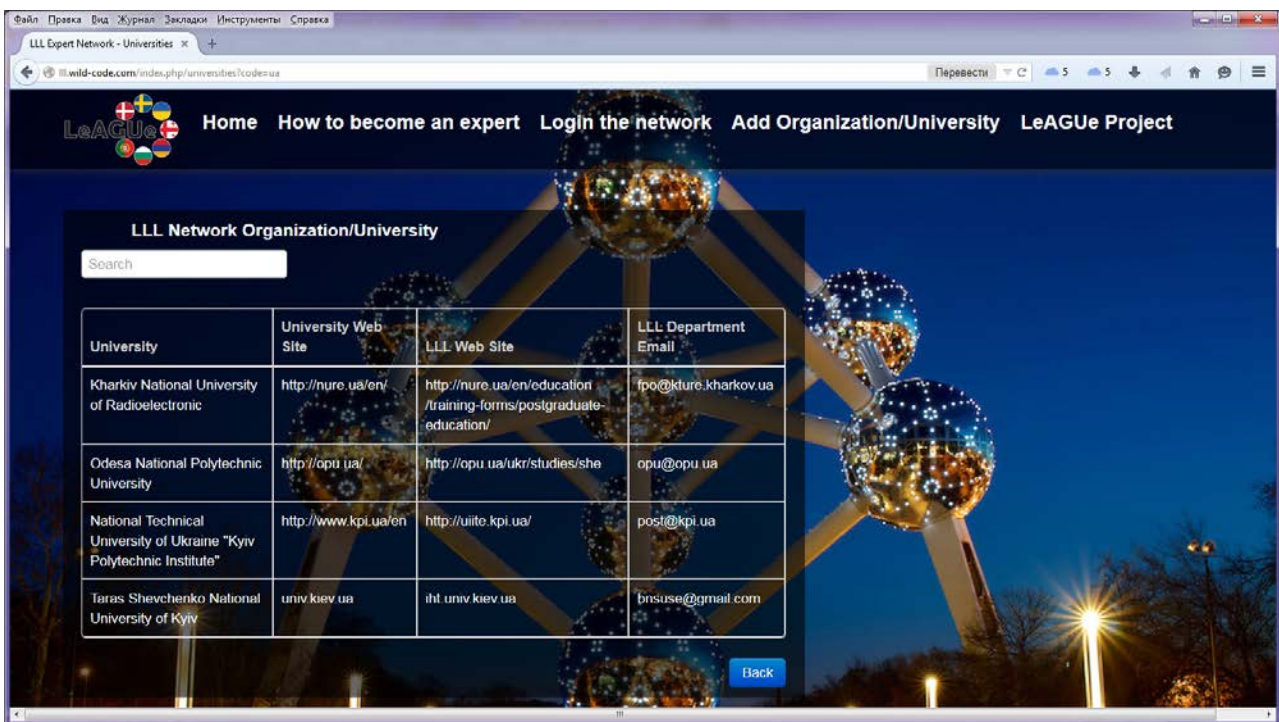
(2)

3. Please choose the University, for example – **Kharkiv National University of Radioelectronic (see img.2)**.
4. You can see information about **LLL Experts from this University** (**competencies (see img.4-5)** , **profile in this web site (see img.6)** and **link to LinkedIn profile**). User has access to the LinkedIn Expert account after click "**linkedin page**" **(see img.3)**.

(3)

5.   User has access to description of competences. Please choose the one of competences "Team Work". You can see Set of competencies with short info about it.
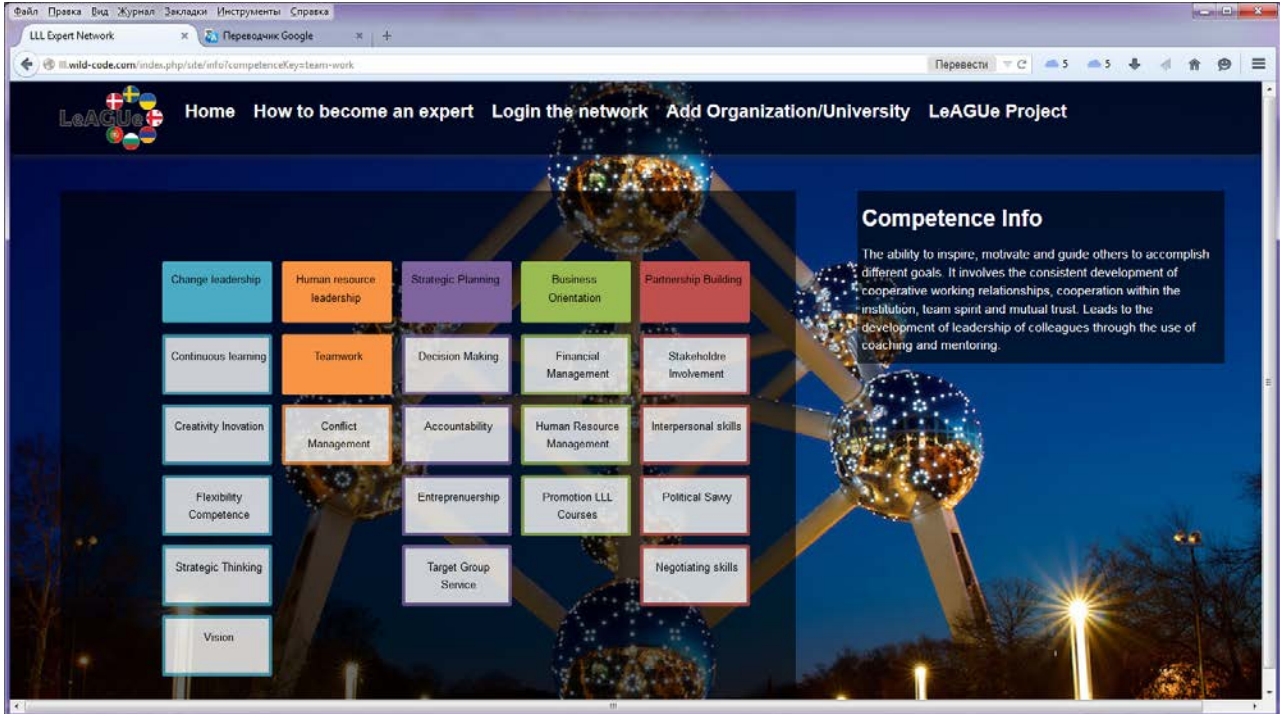
(4)

6.   User can choose any description of these competences. User should click to rectangle area with name of competences after that this area will change a color. For example Financial Management with green color (see below).
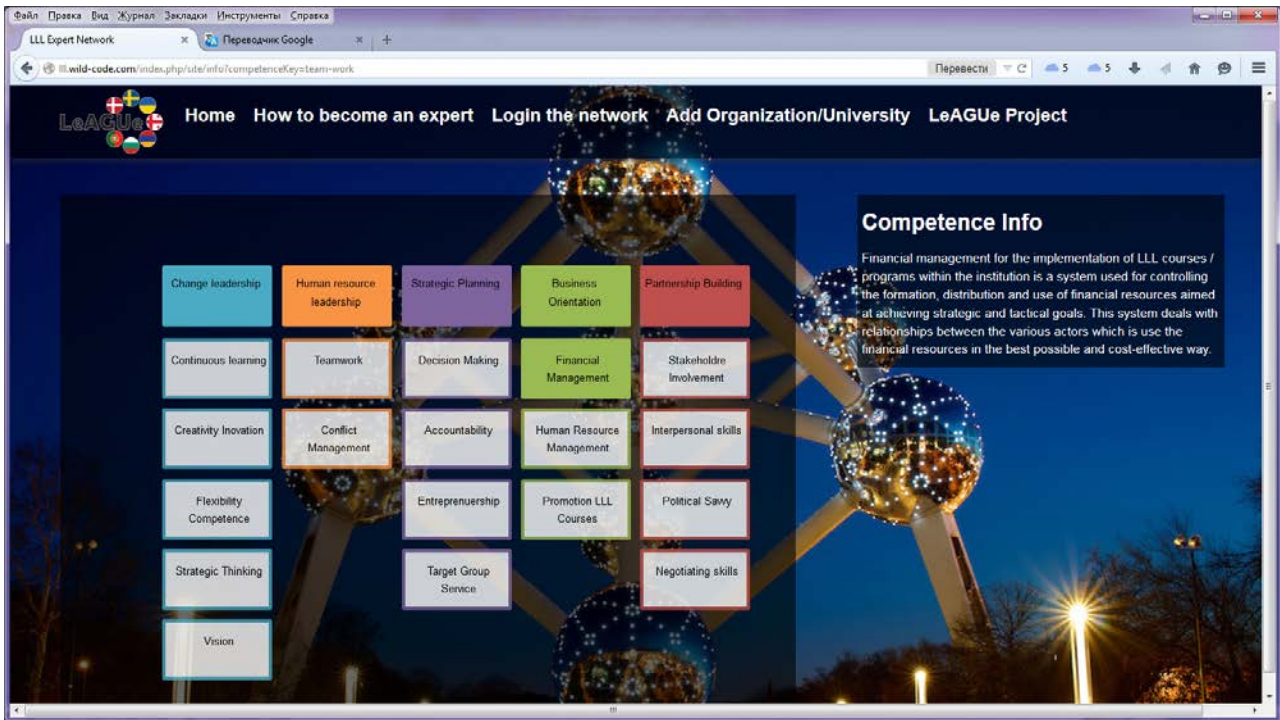
(5)

7.   User has access to Experts profile in this web-site. Please choose profile on web page **(see img.3)** of Revenchuk Ilona. After that you can see information **(see img.3)** about LLL Industry sector, Industry subsector, LLL expertise area, Work experience in LLL, LLL Practical experience, Participation in specialized boards, commissions, workshops, association membership, Referees, Selected Publications in LLL area over the past three years.
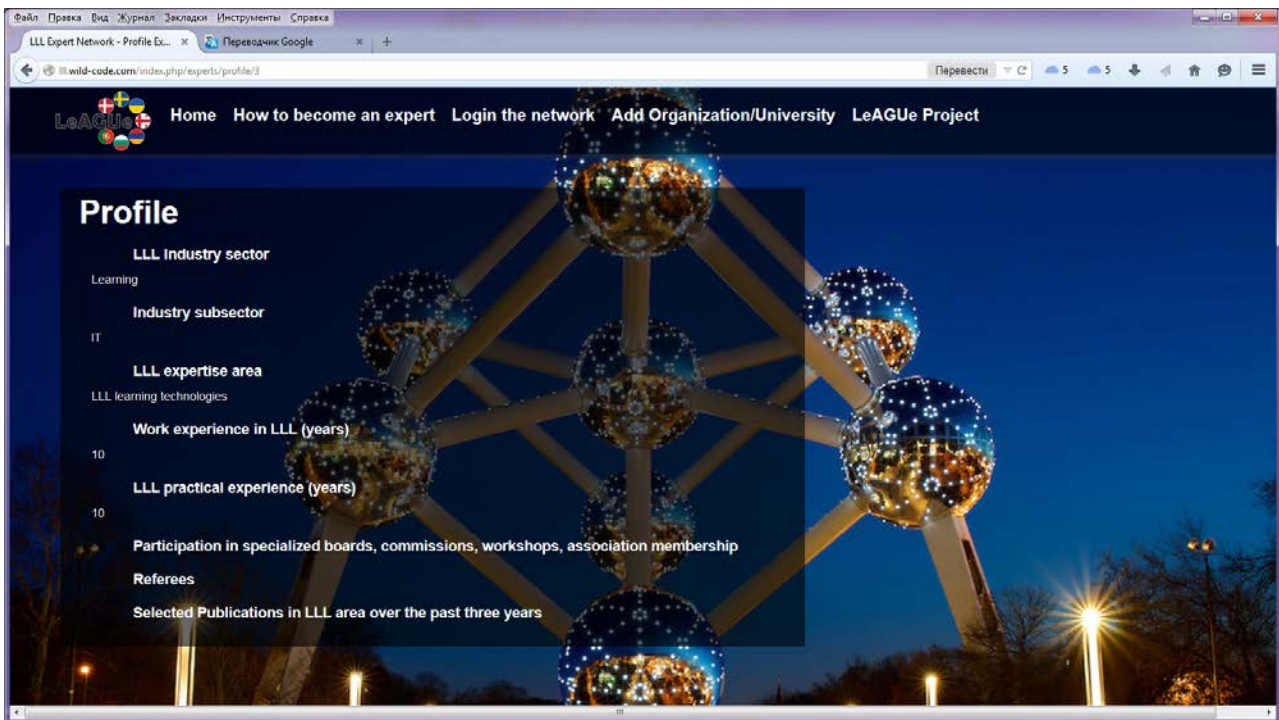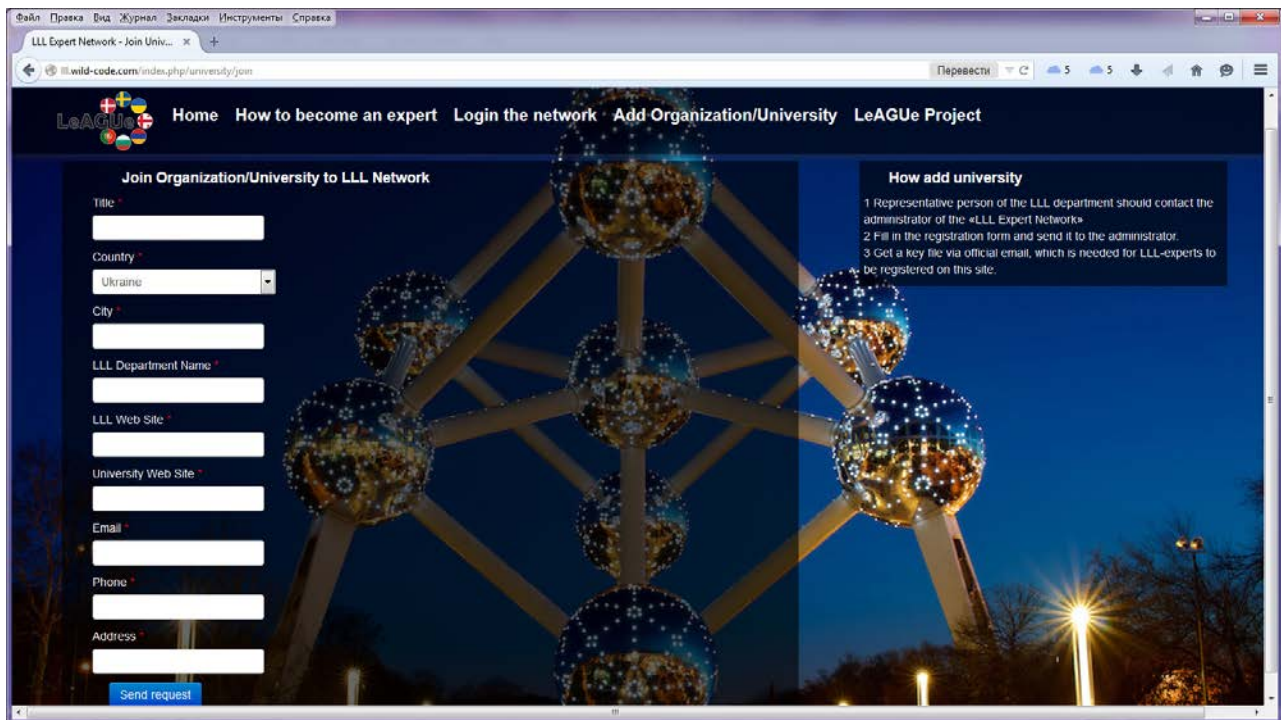
(6)

User get access to LLL Experts Database by country and has access to LLL Experts profile in Professional Network – LinkedIn. User can connect to Expert in **LinkedIn for further communication and** exchange experience.

B. How to register University

1.   Open browser.
2.   Go to link of " LLL Expert Network"(http://lll.wild-code.com/).
3.   Choose country on the main page **(see img. 1)**.
4.   Choose menu *"Add Organization/University"*.
5.   Fill the form "Join Organization/University to LLL Network" **(see img. 7)**.

A NETWORK FOR DEVELOPING LIFELONG LEARING
IN ARMENIA, GEORGIA AND UKRAINE

(7)

6. Push the button "**Send request**".
7. You receive by e-mail (which we send in form) the key-file like it S2hhcmtvdiBOYWNpb25=.key
8. LLL Experts (from your University) should insert this file in website, when they start to registration process in this website.

Important: After registration University will get login, password and hash file. The administrator of the University will give to the University staff member or teacher this hash file for subsequent registration them as experts.

C. How register LLL Expert from University
1. Open browser.
2. Go to link of " LLL Expert Network"(http://lll.wild-code.com/).
3. Sign in to the your account in linkedIn.
4. Open new tab in the browser.
5. Go to link of " LLL Expert Network"(http://lll.wild-code.com/).
6. Choose menu *"How become expert"* on website "LLL Expert network".

28
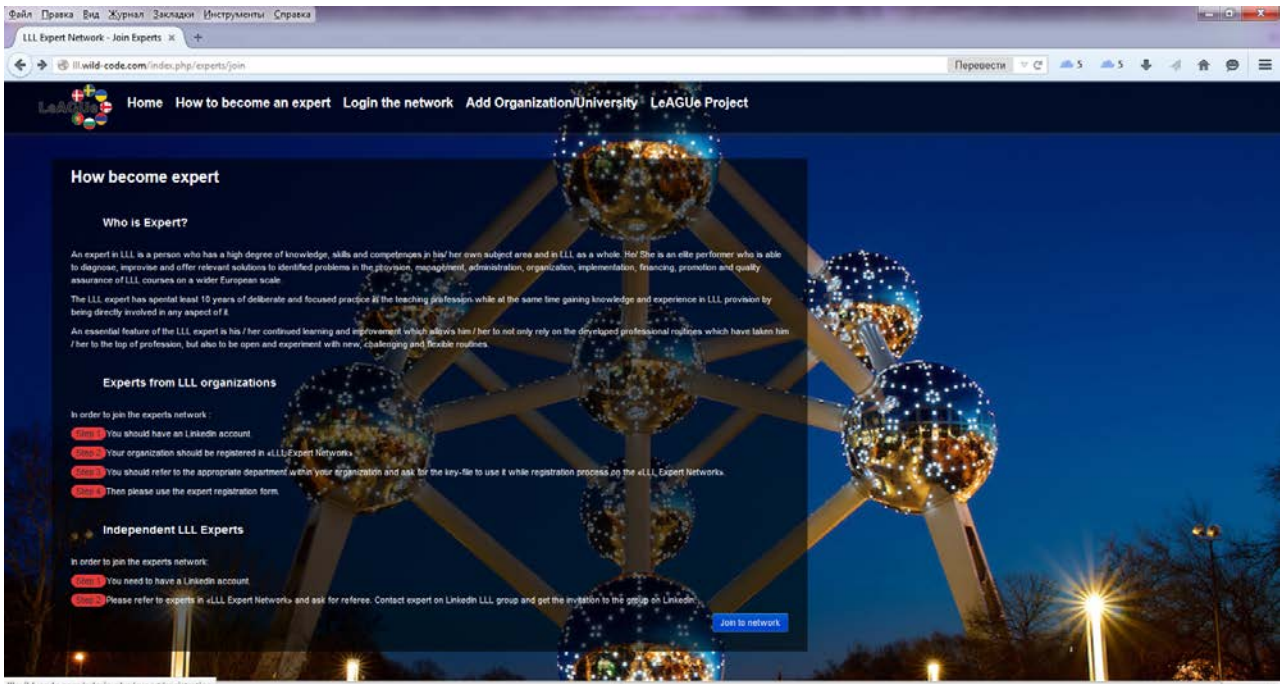
(8)

7.   Push the button "**Join to network**" **(see right down corner on img.8).** After that you can see **img. 9.**
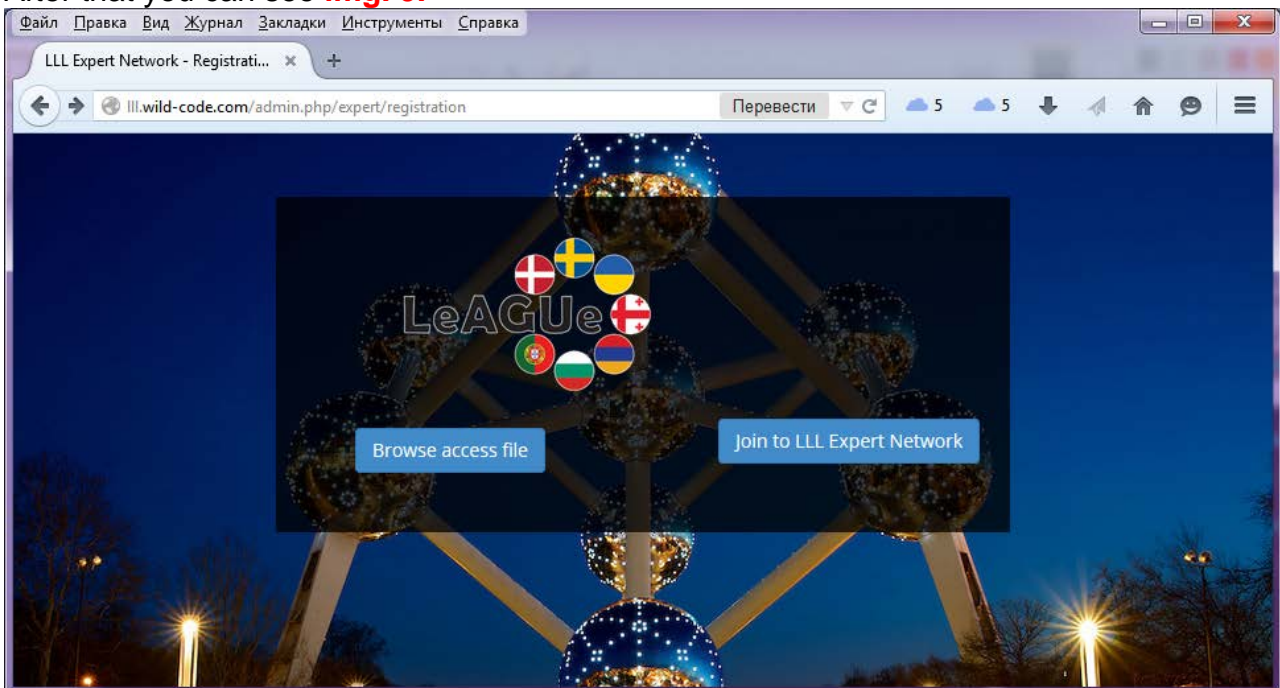
(9)

8.   Push the button "**Browse to access file**".
9.   You should find the key-file in the file system in your computer.
10.   Choose this key-file.

11.   Push button "**Open**". And after that.
12.   Push button "**Joint to LLL Expert Network**".
13.   Enter your LinkedIn password (if you see the form with accept linkedIn password to your account).
14.   If step 1-13 successfully, you can see you *Name* in menu near the LeAGUe logo.
15.   Go to step D.7.

Important: All Experts should have an account on the LinkedIn network.

D. How expert can enter on website and edit your profile

1.   Open browser.
2.   Sign in to the your account in linkedIn.
3.   Open new tab in the browser.
4.   Go to link of " LLL Expert Network"(http://lll.wild-code.com/).
5.   Choose *menu "Enter to network"* on website "LLL Expert network".
6.   After that you can see you *Name* in menu near the LeAGUe logo. **(see** *Name*– **Revenchuk Ilona (red color) on img. 10)**

(10)

7.   **Fill the form.**
8.   Choose *menu with your name* and fill your profile **(see img.11).**
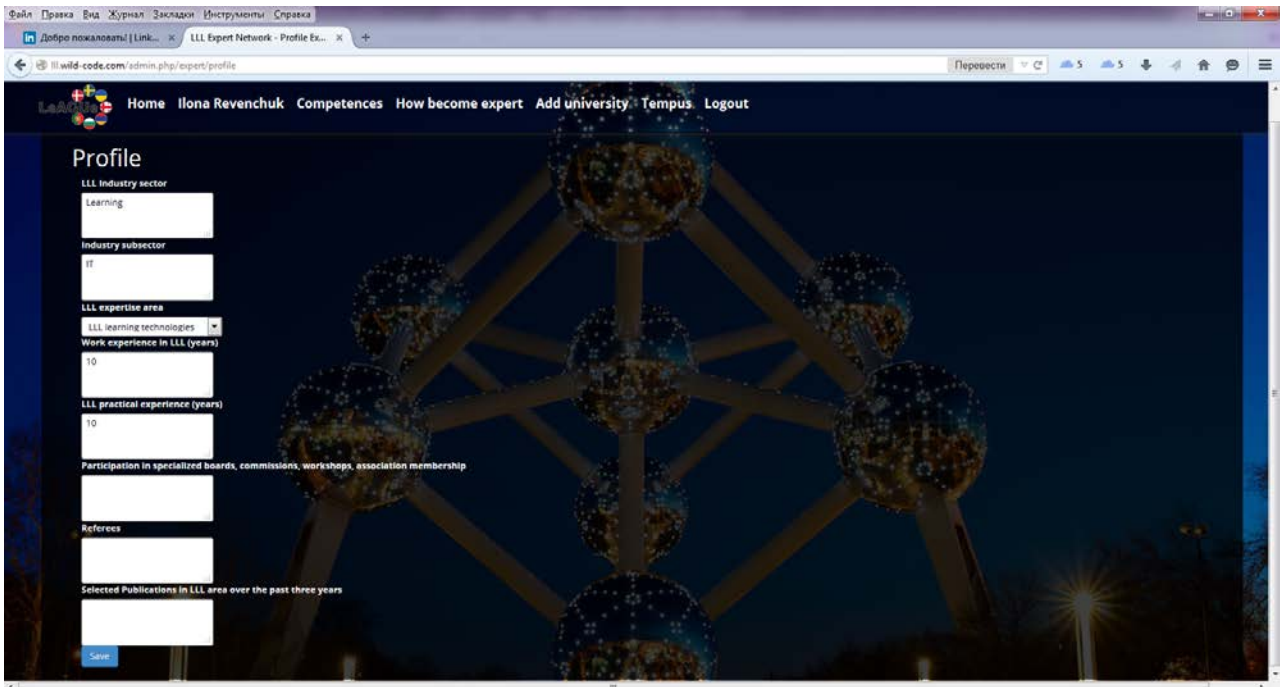
(11)

9. Push the button "**Save**".
10. Choose *menu "Competences"* **(see img.12).**.
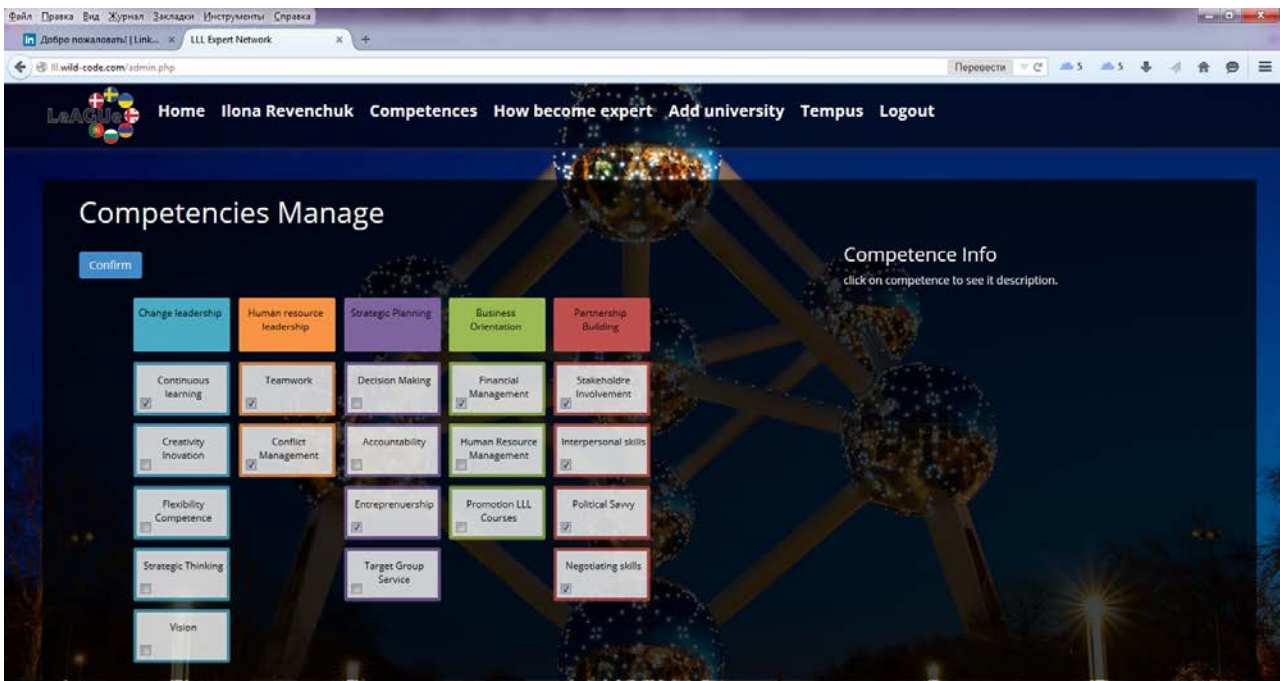
(12)

11. Choose one or all competencies as LLL expert. The competencies are your skill and knowledge in LLL field.

12.   Push the button "**Confirm**".

E. How to edit information about University

1.   Open browser.

2.   Go to link of " LLL Expert Network (http://lll.wild-code.com/admin.php).

3.   Enter e-mail address.

4.   Enter password from the letter, which we received when you register University/LLL Organization.

5.   Push on University name on the top.

6.   You can edit, for example University name.

Work package 3.4 – LLL Support Technology

Coordinator: Tetyana Shatovska, Kharkiv National University of Radioelectronics

The proliferation of new technologies and internet tools is fundamentally changing the way we live and work. The lifelong learning sector is no exception with technology having a major impact on teaching and learning. This in turn is affecting the skills needs of the learning delivery workforce. From Moodle to Edmodo to Inquisiq r3, there's a lot of tools we can use to manage, track, and deliver LLL courses and training programs in our universities.

Take a look on the classification of the Supporting Technology that could be used to deliver LLL programs.
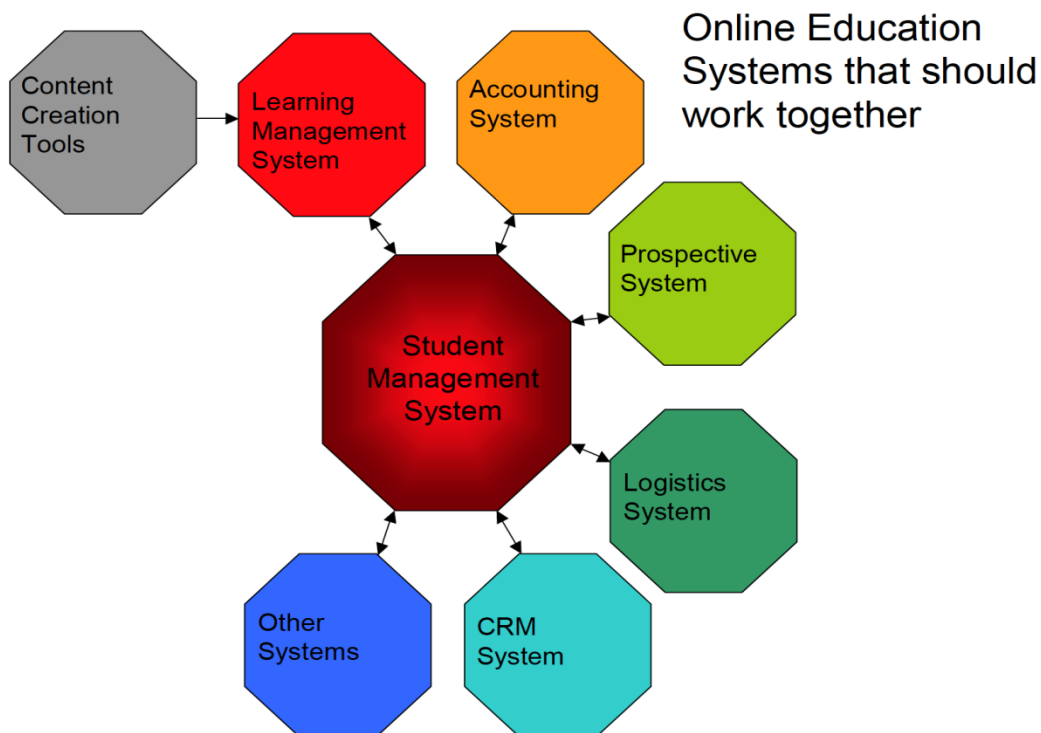
Fig.1 - Online Educational Systems Supporting LLL

Online Education Systems

Online Education Systems	Content Creation Tools (CCT)	Learning Management System (LMS)	Management System (MS)
1.Online Education	1. Content Creation Tools	1. Learning Management System	1. Student Management System
2.E-learning	2. Authoring Tools	2. Learning Platform	2. Enterprise Resource Planning System
3.Online Education Systems	3. Assessment Tools	3. Virtual Learning Environment	3. Human Resource Information System
4. Integrated Online Education Systems	4. Learning Content Management Systems	4. Learning Service Provider	4. Knowledge Management System
5. Standards Specifications	5. Learning Objects		5. Competency Management System

1. Online Education

There are many terms for online education. Some of them are: virtual education, Internetbased education, web-based education, and education via computer-mediated communication. The Web-edu project uses a definition of online education that is based on Desmond Keegan's (1988) definition of distance education. Hence, online education is characterized by:

• the separation of teachers and learners which distinguishes it from face-to-face education

• the influence of an educational organization which distinguishes it from self-study and private tutoring

• the use of a computer network to present or distribute some educational content

• the provision of two-way communication via a computer network so that students may benefit from communication with each other, teachers, and staff

2. E-learning

E-learning is here defined as interactive learning in which the learning content is available online and provides automatic feedback to the student's learning activities. Online communication with real people may or may not be included, but the focus of e-learning is usually more on the learning content than on communication between learners and tutors.

Unfortunately, the term e-learning is often used as a more generic term and as a synonym for online education. E-learning: Covers a wide set of applications and processes, such as Web-based learning, computer-based learning, virtual classrooms, and digital collaboration. It includes the delivery of content via Internet, intranet/extranet (LAN/WAN), audio- and videotape, satellite broadcast, interactive TV, and CD-ROM. The term e-learning is not very precise, and it should be pointed out that learning is just one element of education. So, the term online education should cover a much broader range of services than the term e-learning. One may also claim that e-learning companies often focus on course content, while online education institutions cover the whole range of educational services.

3. Online Education Systems and Integration of Them

Online education systems are here defined as all systems that support online education. In the following, this paper discusses two alternative models for online education systems developed in the web-edu project. The models are:

• The Jigsaw model for online education systems

• The Hub model for online education systems Both models show that several online education systems should be integrated or exchange data and this need for integration increases when online education systems grow from smallscale to large-scale systems. Kaplan-Leiserson touches upon the need for integration in an attempt to define an integrated learning system: ILS (integrated learning system): A complete software, hardware, and network system used for instruction. In addition to providing curriculum and lessons organized by level, an ILS usually includes a number of tools such as assessments, record keeping, report writing, and user information files that help to identify learning needs, monitor progress, and maintain student records. To facilitate the increasing need for integration and exchange of data, a number of initiatives have been undertaken to develop standards

specifications. Among these initiatives are the IMS project (www.imsproject.org) and SCORM (www.adlnet.org/scorm/downloads.cfm). Much focus has been given to the specifications' attempts to facilitate exchange of learning content, but the attempts to standardize integration between the various online education systems could actually be more important. This could be exemplified by the specifications IMS is developing which address key problems and challenges in integration between online education systems:

• The IMS Learning Resources Meta-data Specifications create a uniform way for describing learning resources so that they can be more easily found (discovered), using meta-data aware search tools that reflect the unique needs of users in learning situations.

Content Creation Tools (CCT)

1. **Content creation tools** are the tools that course designers and teachers use to create the content in online education courses. The content creation tools are used to develop learning material. There are many types of content such as for example plain text, slides, graphics, pictures, animations, simulations, assessments, audio, video etc. Typical examples of theses systems are DreamWeaver, FrontPage, Word, PowerPoint, and Director. These are generic tools with few features developed specially for online education. In addition to the much-used generic CCT tools, there are a number of CCT tools that are specially made for development of educational content. The most important of these CCT tools are termed authoring tools and assessment tools.

2. **Authoring Tools**

Authoring tools could be regarded as a subset of content creation tools. Hall (2001) defines an authoring tool as "a software application, used by non-programmers, that utilizes a metaphor (book, or flow chart) to create on-line courses". One may say that authoring tools are content creation tools that are especially developed for creation of educational content.

3. **Assessment Tools**

Content related to assignments and assessment is especially important for educators. It has therefore been developed various tools for development of different types of assignments such as for example quizzes, multiple choice assignments, etc.

4. **Learning Content Management Systems (LCMS)**

LCMS is a computer application that allows publishing, editing and modifying content, organizing, deleting as well as maintenance from a central interface. Such systems of content management provide procedures to manage workflow in a collaborative environment. These procedures can be manual steps or an automated cascade. An LCMS is a system designed to create and manage teaching materials for blended learning (distance or classroom-based). It is first and foremost a space used to centralise learning content, rendering it easy to search, identify and reuse at any time, whatever the training needs.

An LCMS provides a more complex platform meant for developing content used in e-learning programs. Many LCMS packages available on the market also contain tools that resemble those used in an LMS, and most assume that an LMS is already in place. The emphasis in an LCMS is the ability for developers to create new material. Most content-management systems have several aspects in common:

• A focus on creating, developing, and managing content for online courses, with far less emphasis placed on managing the experience of learners.
• A multi-user environment that allows several developers to interact and exchange tools.
• A learning object repository containing learning materials, which are commonly used components that are archived so as to be searchable and adaptable to any online course.

5. Learning Object

It is possible to split content in a number of learning objects and reassemble them to create new learning material or courses in the same way you play with Lego blocs. Kaplan-Leiserson explains a learning object as: A reusable, media-independent chunk of information used as a modular building block for e-learning content. Learning objects are most effective when organized by a meta data classification system and stored in a data repository such as an LCMS.

Learning Management System (LMS)

1. **LMS**

LMS systems are known by various names, including course management system (CMS), learning management system (LMS), virtual learning environment (VLE), virtual learning system

(VLS), learning portal, or e-learning platform. Each term might have a slightly different meaning, depending on your interpretation. Perhaps it should be called an *instructional management system*, as the system's parameters are usually set by instructors rather than by students. An LMS is comprehensive, integrated software that supports the development, delivery, assessment, and administration of courses in traditional face-to-face, blended, or online learning environments.

Institutions use LMS software to plan, implement, facilitate, assess, and monitor student learning. The software centralizes course preparation; educational content and resources; the delivery and tracking of student activities, such as discussion and collaboration; the administration of assessment activities; and the accumulation and presentation of marks and grades. All of these activities are conducted behind a virtual wall that provides a measure of authentication, security, and privacy. Recent LMS software also provides an array of information about student activities that instructors and administrators can view from different perspectives. This information can be analyzed to detect patterns that might suggest how students can be better supported. The LMS helps institutions maintain the integrity of their educational programs and enables faculty to effectively and efficiently develop courses, deliver instruction, facilitate communication, foster collaboration, and assess students. An LMS can be used to support traditional face-to-face instruction, as well as blended and online educational environments.

Most educators in the English-speaking higher education market are probably aware of LMS software such as Blackboard (which also owns Angel and WebCT), Desire2Learn, Instructure Canvas, Moodle, Pearson LearningStudio (previously known as eCollege), and Sakai.[3]However, according to Craig Weiss,[4] 552 companies/developers currently offer LMS software. (Weiss provides links for each company and a brief description of the software; he also indicates whether the software supports mobile learning and online/offline synchronization.) Although vast, the Weiss list does not include LMS software such as Edmodo, an LMS developed primarily for use in K–12, or international software, such as the Thailand Cyber University (TCU) LMS or the Knowledge Environment for Web Learning (KEWL) software developed at the University of the Western Cape in South Africa.

Each LMS is different. Some give users the opportunity to implement a variety of approaches, such as content-centric, activity-centric, network-centric, linear, and branching. Some systems are more effective for delivering asynchronous instruction, while others are better at providing synchronous instruction. Some LMSs can deliver content and allow students to access their grades via mobile devices, while others cannot. Thus, instructors must identify the approaches used and those that could be used to promote learning at their institutions. Then, they must closely examine the LMS tools and features and how they might be used. This takes time and commitment. In general, selecting the right LMS depends on many factors.

Many organizations looking to add more e-learning elements to their training programs get stuck choosing between two similar-sounding, but ultimately different, systems: Learning Management Systems (LMS) and Learning Content Management Systems (LCMS). There are a number of similarities between the two, and recently many software packages have blurred the differences between them. However, there are a few key differences that organizations should keep in mind when looking for an online training system: LMS - A platform for managing people and LCMS -The platform for managing content creation.

2. Virtual Learning Environment (VLE)

Virtual learning environment is a term that to some extent is used instead of LMS. The two terms have more or less the same meaning, but one may argue that VLE focus less on the features related to the management of learning. Bandon Hall (2001) defines learning environment this way: A Learning Environment is software designed as an all-in-one solution that can facilitate online learning for an organization. It includes the functions of a learning management system for those courses within the learning environment, but it may not be able to track online courses that were not created within this particular learning environment. A learning environment is characterized by an interface that allows students to register and take courses, staying within that environment for the duration of the course. The program will usually include some self-instructional portions, along with an academic model of a multi-week course. This model is often facilitated by an instructor, where a group can proceed on a week-to-week basis with seminar assignments. Most learning environments also include an authoring capability for creation of additional courses for the instructor.

3. Learning Service Provider (LSP)

There are a number of institutions that host Learning Management Systems and provide this as a commercial service for educational institutions. These institutions could be termed Learning Service Providers (LSP): Kaplan-Leiserson explains it as a specialized Application Service Provider "offering learning management and training delivery software on a hosted or rental basis".

Management System (MS)

1. Student Management System (SMS)

The student management system is the core system in an educational institution. It is used for management of the most pivotal information about entities such as students, faculty, courses, applications, admissions, payment, exams, and grades. An effective SMS system is crucial for all educational institutions. Two examples of commercial SMS systems are PeopleSoft and Banner. In the Nordic countries, the universities have national systems such as STADS (Denmark), LADOK (Sweden), MSTAS (Norway, and FS (Norway).

2&3. **Enterprise Resource Planning (ERP) System or Human Resource Information System (HRIS)**

Companies and corporations have employees, not students. But they have systems that hold similar data as the SMS systems with important information about their employees. These could be termed Enterprise Resource Planning (ERP) systems or Human Resource Information Systems (HRIS). These systems will provide some of the same functionalities as the student management systems.

How To Choose The Best Learning Management System Based On Your Company's Needs

There are now dozens of different types of LMS, or LCMS, used by organizations to manage - learning and deliver course materials to employees. And while these systems typically share a common purpose — to manage and administer a curriculum to a large and sometimes scattered workforce — the individual features of each of these platforms can vary pretty widely.

In choosing an LMS, it's important for an organization to consider how it plans to deliver training materials to students. Then match your organization's needs to an LMS that offers the corresponding features. Here is a brief primer on the different types of LMS:

Free vs. Commercial

Free, open-source software has a pretty clear upside: It's free. Also, because the source code is open, it can be modified to be highly customizable for each organization. However, most free LMS products tend to be more complicated than commercial products — typically they are utilized by more sophisticated users. Further, without a reliable "support" system in place, making even small changes can be difficult for a novice user — support usually takes the form of online forums or (sometimes) a separate, paid support service.

Commercial software, on the other hand, offers users a support staff, and tends to be much easier to deploy, and use. But of course it costs money. Among commercial LMS products, there are typically two main forms: Installed, or the service-based cloud option.

Installed vs. SaaS

One of the most important elements of an LMS is the ability to scale up or down quickly and easily. Commercial LMS products are typically sold as either a locally hosted enterprise product, which is hosted on an organization's own servers, or as a Software-as-a-Service (SaaS) offering, which is hosted on the vendor's servers and is accessible from anywhere (the data is stored in "the cloud").

Generally, cloud-based SaaS products offer trainers more flexibility when it comes to scaling up or down. Because the product is sold as a "service" (usually monthly), the burden of making systems upgrades, freeing up bandwidth, and providing IT support falls on the vendor, rather than the customer. Because data does not have to be stored on local servers, scalability isn't a concern; most SaaS LMSs can ramp up or down by thousands of users with ease.

A locally installed LMS offers users the ability to individualize and customize their LMS. So if an organization already has an IT staff in place that can administer the system, handle support and customization and scalability concerns, a locally hosted LMS can be powerful. If not, a SaaS hosted platform may make more sense.

Course-creating, or not?

Another thing to look for in an LMS is whether it comes with the ability to create training content. In some cases, an LMS is simply a tool to distribute course content, which must be created in a Learning Content Management System elsewhere (see our article on the differences between an LMS and LCMS).

Some LMS systems, however, do come with some authoring tools that allow trainers and designers to develop their own unique content. Other LMS vendors offer separate course-creation tools for purchase, while some offer no authoring tools whatsoever, and instead rely on third-party course materials.

In the case that your organization plans to use course materials developed by a third party that adheres to SCORM standards, it might be important to find out whether your LMS supports the international SCORM standard. LMS products and courses that have been written in code that adheres to this standard are readable by any other SCORM-compliant software. (For example, a CD can be read by any CD player because it's always formatted by the same standards. SCORM acts similarly.)

Learning Management Systems have come a long way from the earliest days of e-learning. As LMS systems become more sophisticated, one of the most exciting developments is the ability for the system to integrate with other applications your organization already uses — whether that's internal calendars, email, or social networks like Facebook and Twitter. Other LMS products may also integrate closely with talent management systems, which tend to focus on providing support to Human Resource staff functions like recruiting, performance management, and payroll. Depending on your organization's needs, you may keep an eye out for an LMS that features this sort of app integration.

By focusing first on the way your organization plans to roll out its online training and e-learning initiative — and also focusing on how much flexibility you'll need in the future — you can begin to narrow down the wide field of LMS products on the market, and find the right one for your organization.

So in fact, selecting the best LMS or LCMS for your company's training needs can take a great deal of time and money. With that being said, there are a few tricks to *finding the best Learning Management System for your company's training needs*:

1.   Determine your learning and development objectives in advance. What are your core learning and development objectives and aims? Which skill sets or information are your learners expecting to take away from your eLearning course or online training event? Before you even begin to explore your LMS options, you have to have a clear sense of what it is you hope to achieve when utilizing that LMS. This will allow you to choose the LMS that will meet your learning and development needs and, more importantly, the needs of your audience.

2.   Consider the skills of your staff when evaluating the LMS or LCMS. Knowing the specific talents and skill sets of your Learning and Development team will enable you to choose an system that has the functionality and creative control you want, and the usability you need. If you choose an LMS or LCMS that is simple and easy to use but doesn't allow your learning and development team members to utilize their experience and know-how, then you're missing out on the invaluable human perspective.

3.   Assess your current Learning and Development Strategy. Go through your current Learning and Development strategy to see what needs to be improved upon and what is working effectively. Doing so, will give you the chance to select an LMS or LCMS that utilizes the successful learning materials you currently have, while fine-tuning the ones that do not support and promote your training objectives. Be sure to also evaluate learner performance and knowledge acquisition during your assessment.

4.   Get feedback from your Learning and Development staff. Ask your instructors and facilitators about their honest opinion concerning your current training strategy. What features would they like to see in the new LMS? Are there any tools or materials that they find beneficial or necessary in order to make their job easier? These are the people who are going to be helping your learners to take full advantage of your new eLearning strategy. So, you want to make sure that they are on-board and that they know their ideas are being considered and valued.

5.   Assess any technical considerations or limitations. When choosing an LMS or LCMS, you will have to evaluate how the new learning system will be

integrated with your current technologies or software. You will also want to consider how you want your learners to access the information. Will they be using their mobile devices? If so, then you will have to find a LMS that supports mobile platforms too.

6.   Does the LMS or LCMS offer the essential features and functions you really need? With the wide variety of LMS features that are available today, it can be challenging to narrow down your list of must-haves for your new LMS or LCMS. However, it's important to have a clearly defined set of features and functions that your LMS or LCMS absolutely needs to have in order to be a good return on investment. For example, does it have to be mobile friendly? Does it have to include content reusability features? Are gamification, social learning, and micro-learning a "must" for you?

7.   Review the experience and background of the LMS vendors. Ask the LMS vendors about their experience, skill sets, qualifications, and background during the selection process. Look online to see if there are any reviews for the LMS and company, or ratings that will give you a better idea of how they dealt with customers in the past. Ultimately, those who have worked in your niche or industry before is ideal, as they will have in depth knowledge of the subject matter and how to effectively deliver content for your specific audience.

8.   What support services are offered with the LMS or LCMS? Does the company offer round the clock support? Are they going to be able to troubleshoot problems that you may encounter with the LMS or LCMS in the future? Ask the LMS or LCMS vendor about the support services that come with your LMS or LCMS package to ensure that you have access to the help you need to make the most of your new LMS or LCMS.

9.   Adaptability and maintenance are key to ensure the future success of an LMS or LCMS.
An LMS or LCMS may meet all of your requirements in regards to features and tech specifications, but you will also have to think about your LMS or LCMS strategy in the long-term. Is the LMS or LCMS easy to maintain if you need to update it on a regular basis? Will it be able to adapt the future needs of your organization? You wouldn't want to spend a large chunk of your budget on your new LMS or LCMS only to discover that it won't suit your company's learning and development goals a year from now.

10.   Ask for a live demonstration or a trial period. Don't hesitate to ask the LMS or LCMS vendor for a live demonstration or even a trial period that will allow you to see the LMS or LCMS in action. Through a live demo you will be able to determine if the features and functions are in-line with your learning and development needs and wants, and whether or not the usability and scalability is what you are looking for. Remember, the LMS or LCMS is probably going to be a significant investment for your company, so it's always wise to give it a test drive beforehand.

11.   Consider the data tracking capabilities of the LMS or LCMS. While the development and design capabilities of your LMS or LCMS are important, you won't be able to create the best possible eLearning experience without tracking features. Ideally, you'll want an LMS or LCMS that offers you learners data tracking, so that you can gauge learner performance and determine if any areas of your eLearning course need to be fine tuned.

Free Lms: Learning Management Systems For Online Courses

1. **Academy Of Mine:** While not technically a free option we offer services many of the free options don't. First of all, many of the fee options don't let you sell your course. So you can offer your course, but you can't make money from it. With us, you can sell and make money from your online course software. Secondly, a lot of the free options leave a lot to be desired from a design standpoint. You can check out our live demo to see how our learning platform looks. And thirdly and most importantly, we believe we're better than free… because we actually make course vendors money. Our services pay for your small monthly fee many times over. We help our clients make thousands of more dollars on a month to month basis. The way we see it, if we cost you $100 but we make you $3000, we're not really costing you money. And you keep 100% of your enrollment sales. So in a way… we're kind of better than free! But if you're interested in truly free, 100% free… then check out the options below. There are a lot of great options available for those of you who don't want to monetize your course or want to try to do it on your own.

2. **MOODLE**: Moodle is a free web application for educators and probably one of the most popular free LMS's on the market today. It's open source Learning Management System software so it's constantly being upgraded and developed. However, you might find that you need to hire third parties to help you customize the platform to help you achieve your educational needs. Just because it's free, it doesn't mean it's not going to cost you money. However, you should test it out. It might work for your needs right out of the box.

3. **LRN**: This LMS (pronounced "dot learn") was originally developed at MIT, .LRN is used worldwide by over half a million users in higher education, government, non-profit, and K-12. It comes out of the box with a lot of great teaching tools (forums, assessment, calendar, grading, evaluation, surveys, syllabus, file storage and a lot more).

4. **eFront:** Offers a "freemium" LMS where the core of their software is open source but their hosted solutions cost between $85 – $1990 / month.

5. **Dokeos**: Is another open source learning platform. It has pre-built quiz templates and course authoring tools. If you're on their website you can go to their "videos" page to see a list of their tutorials on using their PHP based platform. This will give you a glimpse into how the course admin back-end looks as well.

6. **Sakai**: Another open source option is Sakai. As is stated on Sakai's website "Each day community members share thousands of interactions – building and improving the software, requesting help, collaborating on projects, and enjoying the relationships that result from this work".

7. **ATutor**: It's great when LMS websites allow you to see a functioning demo of their Learning Management System (like we do). ATutor does this well. At Atutor you can click on "try the demo" to test drive this LMS. It has plenty of great features and a lot of functionality. and it's also open source so it's constantly being improved and updated.

8. **Blackboard CourseSites**: Blackboard is a big name in online education. Many really big universities, corporate organizations and governmental agencies use their main educational LMS called "Blackboard Learn". However, they've released CourseSites to the community of individual teachers and academics. It's a great free option, but of course, since it caters to individual instructors there are limitations imposed (for example only 500mb is allowed uploaded, only 5 courses can be added).

9. **Latitude Learning**: This is another really feature rich "freemium" LMS. You can use their Learning Management System for up to 100 users. This is a great option for individual teachers teaching really small classes. If you want to go beyond 100 users it will costs you around $2 – $4 / active user. The LMS ad-ons (such as the virtual classroom which costs $600) will also add to the costs of the LMS if you'll need these ad-ons for your online program.

10. **Schoology**: Another "freemium" option with a lot of great features for both individual teachers and enterprises. Their LMS comes with many interesting and visually impressive features. For example, an online grade-book, attendance sheets and a student usage tracker.

11. **ILIAS**: A SCORM certified open source Learning Management System. ILIAS is a multipurpose tool that can be used as a flexible course player, as an authoring tool, but also as a communication and collaboration platform.

12: **Udemy**: Is an interesting option for those looking to sell their courses online. Of course, with us you keep 100% of profits but you pay a small monthly fee but with Udemy because they handle the marketing of your online course, customer support, hosting and those details they take 50% of your course sales but there is no monthly fee so you can teach your course for free from their website.

LLL Online Courses Platforms

Academy of Mine

One of the things I have found interesting about the Academy of Mine folks is that they are doing an excellent job using many of the very tactics I encourage in Leading the Learning Revolution to grow their own learning business, including a very active blog, podcasts, and Webinars that provide value to their audience. They are also very focused on blending marketing tools with learning tools in the administrative interface for their system. I have gotten feedback from some users that the learning curve to get up and running on the system is pretty steep. That said, if you can make your way up the curve, you will have pretty powerful set of tools at your disposal. Pricing starts at $199 a month.

Link: http://www.academyofmine.com

Coggno

With Coggno, you can create courses or upload existing content – including SCORM files. You also have the option to deliver these courses privately or to distribute them through the Coggno marketplace. Coggno also provides the useful twist of enabling organizations to use a branded instance of the Coggno platform for free to offer courses to their target audience (e.g., employees, members) – thus providing yet another distribution option for your content. Organizations that use the LMS in this way pay only for the content they use. For course developers looking to sell their content, pricing starts at $24.95 per month plus 10% of sales.

Link: http://coggno.com/lms/sell-courses

CourseMerchant

If you happen to have already gone down the Moodle path (widely used open source LMS) for your course delivery needs, then you may want to check out CourseMerchant. While Moodle itself provides a very basic e-commerce option, CourseMerchant helps you take things to a much more sophisticated level – including the ability to bundle courses, offer discounts, and sell multi-seat licenses that allow for the seats to be easily allocated to learners. The CourseMerchant folks are also behind CourseIndex.com, a network that enables you to promote your courses through affiliate marketers.

Link: http://www.coursemerchant.com/
Link: http://www.courseindex.com/

Digital Chalk

Digital Chalk offers a variety of plans for getting courses online as well as production services to help you do it. If you've got the expertise, but don't want to have to deal with the nuts and bolts of producing a course, this is a choice to consider. The company charges a $399 set up fee and then $4.95 per registration for a basic course. The platform appears to be chock full of great features.

Link: http://www.digitalchalk.com

Educadium

With its CampusPay LMS services Educadium offers a way to add a simple e-commerce solution to its EasyCampus platform. EasyCampus is, indeed, an easy platform on which to get up and running, but is nonetheless a relatively feature-rich LMS with a range of options for adding on features and services that fit your needs. Pricing for the platform starts at $39 per month and e-commerce fees range from 6.5% to 10% of sales, depending on which subscription package you choose.
http://www.educadium.com/campuspay

EZLCMS

While most of the options here have some level of content authoring capabilities, EZLCMS aims to take things a step further with its Adaptive Course Authoring PowerPoint Plug-In. The company says the plug-in 'will convert your presentation into a mobile-friendly HTML based courseware product that can be delivered on computers and mobile devices." If you happen to be delivering serious assessments as part of your offerings, EZLCMS also offers item analysis as part of its reporting capabilities. There's a free 15 day trial and after that pricing starts at $199 per month.

Link: http://www.ezlcms.com/index.php/e-commerce/

Inquisiq

Inquisiq steps up the game quite a bit by offering features like multiple branded site instances (e.g., so that you can set up branded training portals for your business-to-business course sales) and a variety of discount code options for purchasers. Like Litmos, it also provides for issuing certificates to users who complete/pass courses. If you sell primarily to business (as opposed to individual) buyers, you want to be sure to check out this option. There's a free trial available (for an unspecified period of time), then pricing starts at $200 per month.

Link: http://www.inquisiqr3.com/solutions/sell-your-courses-online/

Learning Cart

As the name suggests, Learning Cart is all about hooking e-commerce up to your online courses. The platform can be used to sell just about any kind of online content, and I like the fact that it also has an integrated blog engine to help you with your content marketing and SEO. It also has a number of nice integration – with GoToWebinar and Google Analytics for example. All in all, it is quite sophisticated for $149 per month.

Link: http://www.learningcart.com

Massive Open Online Courses (MOOCs):

Free online courses from the world's best Universities. MOOCs (Massively Open Online Courses) provide video lectures, structured deadlines and interactive learning communities.

1.   Coursera -The largest course platform for free MOOCs . Founded by two former Stanford University professors.

2. Udacity – Founded by Sebastian Thrun, the creator of the artificial intelligence system behind Google's self-driving cars. Udacity's focus is on free MOOCs for improving your knowledge of STEM (Science, Technology, Engineering, Mathematics) disciplines.

3. EdX – A free MOOC platform developed through a partnership between Harvard, MIT and Berkeley. Expanding rapidly.

4. MIT Open Courseware – This ambitious project launched over a decade ago by MIT makes the course materials used in virtually all of MIT's courses available on the web for free.

5. Khan Academy – Salman Khan's pioneering online academy where you can learn just about any academic subject online for free.

6. Saylor – Started by serial entrepreneurial and education futurist Michael Saylor. The Saylor Foundation is a non-profit that provides a free University education that includes written exams and University credits for most of your work.

7. University of the People – A tuition-free online University that aims to democratize higher education by offering it anyone in the world.

8. iTunes U – Apple's iTunes University initiative makes it easy to take courses on your iPhone or iPad wherever you go.

9. World Education University (WEU) – A massively open online University (they call it MOOC 2.0) that offers degrees and full program for free. It's a for-profit enterprise that funds itself through advertising, publishing and organization partnerships rather than tuition fees.

10. Canvas Network – An open learning network with a growing collection of free online courses. Sign up early for courses, they fill up fast.

11. FutureLearn – The United Kingdom's MOOC initiative has over 40 leading Universities offering free online courses.

Questions For Choosing A Learning Management System

1. Cost

From experience, buying an LMS is like haggling in a Middle Eastern market, or less exotically, buying a car. There is really no fixed prices and vendors are willing to wheel and deal, especially if your online program will have lots of students (This is great news for national and regional ministries of education. For schools and smaller entities, this speaks to the power of forming buying consortia). Getting the vendor to unpack costs (if they will do that) can help you decide what you do and don't need and what you will and won't get. Some questions you might ask are:

- How much does the LMS cost?
- Right. Got it. Now, really, how much will it cost us?
- Are these capital or recurrent costs?
- Are there annual licensing fees or other costs in this price?
- Can you break down the cost into components?
- What is the per user cost? Does this reflect infrequent users and are there special rates for them (for example, someone taking a one-week certification course)?

- What post-implementation costs will we potentially incur?
- How do these costs compare with quotes from other vendors?
- What does a "license" include (e.g., How many people? How many computers?) and for how long?
- Do we have to pay fees when LMS is updated?
- Does the vendor have an enterprise rate?
- What does this total cost include (for example, upgrades, server space, maintenance, learning objects, training, support, etc.?)
- What other costs are involved?
- (This is good place to compare vendor X costs with those of vendor Y and Z and ask more specific questions)

2. Vendor Profile

Given the number of mergers and acquisitions in the e-learning world, you want to make sure that your vendor is stable—that it will be around for a while so you can have consistency with your el-learning system and maintain the relationships you've invested in. Possible questions to consider:

- Is the vendor reliable and well-known?
- Does the vendor have documentation (evaluations, testimonials, etc.) that they offer a quality product?
- If you are outside North America, Europe, Australia, does the vendor have a strong presence in your part of the globe?
- Does the vendor have sales, training, and support staff who speak the language of your country?
- Does the LMS have a language pack in your language?
- (Depending on the type of education institution) how much university/secondary school/education market share does the vendor have?
- If the product is open-source, is there a strong development community associated with it and how do we contact them?
- Who are some of the LMS users? (Schools, universities, where?)
- What is the reputation of the vendor and product among other schools/universities?
- If the vendor is marketing an open-source system like Moodle, are they a Moodlerooms provider?
- Does the vendor have research about other ways the LMS has been used? Can the vendor provide references?
- Can the vendor provide list of institutions using this LMS so you can cold call for references?
- What are plans for upgrades? Are there planned mergers/acquisitions/organizational changes? Will the current contract hold in the event of these? How will that impact us?
- Will the vendor provide you with a "divorce clause"? If not satisfied, will they help you migrate your content to another system?
- What is your sense of the vendor staff with whom you are interacting? Do they seem open, responsive, honest, knowledgeable? Do they answer all your questions?

3. Ease of Use

If the LMS is not easy to use--to design for and to learn in/through--people will abandon it in droves and your investment runs the risk of being wasted. And, in fact, some LMSs are quite intuitive and others quite capricious. Some questions to consider:

- How available is documentation, how-to guides, training and online help?
- How responsiveness is technical support (hours, days)? Is it available for instructors and students?
- Will the program require lots of training or is it fairly intuitive to use?
- At a minimum, how long will it take instructors to set up their courses?
- Is the LMS customizable?
- Does it work equally well with all browsers?
- How long does installation take?
- Does it have easy navigation/linking/uploading features?
- Does it come with an FAQ?

4. Access

In particular if you plan on a large-sale system, getting students registered as seamlessly as possible is critical. Some questions to consider:

- Is there individual/group login and password?
- Are there assignable privileges?
- Can instructor manage user profiles, define roles, assign tutors?
- Are any of the features accessible through a browser?
- Can any of this be done via a mobile phone?
- Is there course authorization where instructors approve enrollment?
- Is there registration integration - Registration, Prerequisite Screening, Cancel Notification?
- Can an administrator manage user registrations?
- Can it support Single Sign On provisions with other parts of the LMS or with other programs?
- Can the LMS either build schedules for learners, instructors, and classrooms or synchronize with database managements systems that do?
- Does it offer username and password with forgotten password routine? Is this instant?

5. Course Design

Ease of course design is crucial. Poorly designed courses confuse students and require more of an online instructor (if there is one) in terms of support. Some questions to ask might be:

- Does the LMS allow for easy course structure and design?
- Does the LMS have course templates?
- Does it support all content?
- What types of content does it not support or have problems with?
- Does it support integration of common types of software (e.g., MS Word, Google Docs, etc.) and how well does that work? (For example, if you create something in Word and paste in the LMS, do you then have to go into the HTML editor and clean it up?)
- Can the LMS import and manage content and course ware from other LMSs?

• Does it use and provide access to learning objects? What is the capacity to integrate with existing and newly created learning objects?

• How available is compatible content?

• Does LMS work with most/all open-content and digital content?

• (If needed), how easy is it to author in other languages (e.g., using accents, tildes, cedillas, etc.)

• Does it support web-based authoring?

• Does it support and allow the designer to embed multimedia, video, interactive learning objects/third-party applications (Java-enabled applets, etc.)?

• Is it support accessibility compliance and Universal Design for Learning?

• Does it come with instructional design tools? If so, what are they?

• Does it have pre-integrated content development and/or content management capabilities?

• Does it come with content creation tools? If not, does the vendor have agreements with content creation vendors (e.g., Captivate or Storyline?)

• Can content be created offline and synchronized?

• Is there drag-and-drop functionality? Can multiple files be uploaded at once?

• Does it allow for third-party apps, social media, widgets?

6. Design, Functionality, Integration

The design, functionality and how it works (or doesn't work) with existing systems all impact the user experience. You definitely want to ask the company to create a sandbox where you can test out course design (see above) and collaboration (see below) functions. Beware of vendors that don't allow that. Some questions to consider:

• Is this LMS designed for secondary or tertiary institutions? (If the former, allowing parents to register easily and see their son/daughter's work will be important)

• (If it is a suite), can we unbundle features and purchase components *à la carte*?

• Is it designed for large or small educational institutions?

• What features does it come with? Can they be modified and turned off/on as needed?

• How do students get registered and authenticated?

• Can LMS support the self-registration process we see in MOOCs? Or is it better done in EMIS or SIS?

• Does the LMS have its own Student Information System? Will it support an existing SIS? If there is no compatibility at the moment, will the vendor create an API so both systems work together?

• How easily does the LMS allow for growth of users, content, functionality?

• Does it/how well does it work on mobile devices? Across mobile platforms?

• Does it adhere to such specifications as QTI, IMS, AICC, SCORM, ISO 9000 or Tin Can/Experience API? Can the vendor provide support for the latter?

• What kinds of analytics does it provide?

• Does it support XML and HTML 5 and is support available for both?

• (This is also a good place to ask compare-and-contrast questions with other LMSs)

7. Online Collaboration and Communications

Communication and collaboration--among students and between students and instructor--are key to a positive online learning experience, so your LMS needs to support such ease of communication. Questions to consider:

• Does it have tools that support community learning or collaboration components that support communication?
• Can it give students and faculty email accounts?
• Can it support e-mail and integrate emails sent from regular POP mail accounts?
• Are there chat rooms?
• Does it have online support /Help Desk? How many hours of each? For students too or only instructors?
• Does the LMS support numerous file exchange types?
• Is there a whiteboard?
• Are there discussion groups/forums?
• Is there a built-in conferencing tool or does it integrate or support the inclusion of third-party tools like Webex or Adobe Connect?
• Do all of the collaboration tools work together well/are they integrated?
• Can students easily access social media tools (like Twitter, Facebook, YouTube, etc.)?
• Is there an online community around this LMS to which instructors and administrators will have access?

8. Assessment

Assessment has traditionally been a weak area in the LMS world, but has improved greatly over the last few years, in part because of the proliferation of school-based online and blended programs. Questions to consider:

• What types of assessments does it support (How easy are these to create?)
• Can the instructor create test questions and facilitate test administration?
• Does the LMS support automated testing and scoring?
• Does it support competency mapping/skill gap analysis?
• Is there a portfolio feature?
• Does it support multiple types of assessment--quizzes, essays, tests, surveys, blogs?
• Are there easy ways to create rubrics and use them seamlessly to assess student work?
• Is there a grade book? Can it be easily exported and imported to and from Excel and to/from an external grading system?
• Can the LMS print certificates?
• Can the instructor create standard and customized reports on individual and group performance?
• Does it track student participation, progress and performance and inform the instructor when/if there is a potential problem in these areas?

9. Security

"Security" here assumes multiple levels--you will want network security, access to the course through secured connections, ensuring that only the student (and instructor and possibly parent) has access to his/her work, secured data and privacy through encryption and third-party certification, and

even security in terms of data recovery in the event of a natural disaster or sudden unanticipated major interruption.

• Is the LMS compatible with your nation's (e.g., Children's Internet Protection Act) and/or school's security and privacy protocols?
  • Does the LMS handle security or authentication schemas?
  • Are there tools for digital rights management (DRM)?
  • Are there strong privacy controls?
  • Is there encryption (encodes and decodes messages)?
  • Is there multiple authentication?
  • Will it host the site remotely (if so, where) or support local hosting?
  • Where are the servers located?
  • Is there an automatic backup system? How frequent?
  • Is there a disaster recovery plan?

10. (For open-source systems) Openness

The biggest issue for institutions to consider (I think) is the tradeoff between cost and convenience and support. The old adage in e-learning is that "free" is free like puppies, not beer. There will always be costs, even in a free system, and these costs may manifest themselves in greater amounts of support staff time. Questions to consider?

• How open is the source code? Is it available and if so, from where?
• What are the languages it's written in?
• If it is open, is it also free?
• Is it written in a modular format that is designed for easy modification and new, customized modules?
• Are there clear code specifications for writing new modules?
• Does the code come with supports/documentation?
• How active and involved is the open community in supporting this LMS?
• What's more important to our organization--cost of convenience and support?

Work package 3.5 – Teaching Methods

List of Abbreviations

LeAGUe	–	A Network for Developing Lifelong learning in Armenia, Georgia and Ukraine
LLL	–	Lifelong Learning
ANAU	–	Armenian National Agrarian University
GSU	–	Gavar State University
ISU	–	Ilia State University
KNURE	–	Kharkiv National University of Radioelectronics
NTUU	–	National Technical University of Ukraine Kyiv Polytechnic Ins.
ONPU	–	Odessa National Polytechnic University
RAU	–	Russian – Armenian (Slavonic) University
TSNUK	–	Taras Shevchenko National University of Kyiv
UG	–	The University of Georgia
VSU	–	Vanadzor State University
AEAG	–	Adult Education Association of Georgia
ALLLL	–	Armenian Lifelong Learning League

Introduction

This document - LLL Teaching Methods has been developed in the framework of the Tempus LeAGUe (A Network for Developing Lifelong learning in Armenia, Georgia and Ukraine) project and belongs to Work Package 3: Implementation of LLL strategies and policies in partner universities.

The purpose of LLL Teaching Methods is to provide relevant teaching methods for LLL courses which will enhance their usefulness in order to support the development of continuing and further education in AGU countries, meet the demands of the changing labour market and hence contribute to social and economical growth of each of these countries.

For the purpose of selecting and providing relevant teaching methods for LLL courses, the following tasks were set:

1.   Analyze all the existing teaching methods;

2.   Evaluate the usefulness of each teaching method/approach for LLL courses, and identify their relevance for lifelong learning;

3.   Identify the competences that each of these selected teaching methods provide for LLL students;

4.   Provide best practice example from the partners of how the method is applied;

This document consists of two main parts. The first part provides descriptions of 11 (eleven) teaching methods relevant for LLL courses. The descriptions consist of the following sections: **Short description of the method**; **Relevance for LLL** ; **Procedures**; **Assessment**; **Activities**; **Teacher's role**; **Student's role**; **Competences**; **Resources needed**; and **References and Further Readings.**

The second part provides some best practice descriptions from the partner organizations. A template for best practice description has been designed (See. Appendix 1) for partners to understand how some of the teaching methods are used in the partner orgnizations and institutions.

Teaching Methods

1.1. Inquiry-Based Learning

Short description of the method

Inquiry-Based Learning is a student-centred approach which focuses on the development of learners' higher order thinking skills. This approach implies is a complex process where students formulate questions, investigate to find answers, build new understandings, meanings and knowledge, and then communicate their learnings to others.

Relevance for LLL

Inquiry-Based Learning can enhance the effectiveness of LLL courses since it emphasises the importance of developing and fostering inquiring minds and attitudes in learners; it enables them to continue the quest for knowledge throughout life.

Procedures

1. The formulation of a question related to the topic of inquiry. The question can be initiated by the teacher or by the students.

2. Once the question is posed, students are encouraged to investigate the topic by gathering information, doing research themselves.

3. When the students gather enough information about the topic, they discuss and analyze for further understanding.

4. Students make conslusions, and report the learning outcome.

5. Evaluation of the learning outcome. Self as well as peer-assessment is used for the evaluation process. Final assessment is done by the teacher.

6. Students are encouraged to generate new questions.

Commonly used Activities

Inquiry-Based Learning can be done in multiple formats, including: Field-work; Case studies; Investigations; Individual and group projects; Research projects, etc.

Teacher's role

Teachers play very important role in the effectiveness of Inquiry-Based classes. They can adopt various roles: motivator, guide, fascilitator, researcher, mentor, collaborator, supervisor, etc.

One of the most important responsibilities of teachers in Inquiry-Based classes is to adapt the process to the abilities and the knowledge of their students. They are also responsible for:

1. starting the inquiry process;

2. promoting student dialogue;

3. shifting from small groups to classroom discussions;

4. intervening to clear misconceptions or develop students' understanding of content material;

5. modeling scientific procedures and attitudes;

6. utilizing student experiences to create new content knowledge.

Student's role

The fundamental goal of the inquiry-based learning is students' active engagement during the learning process. Inquiry-Based Learning involves learners: developing questioning, research and communication skills; solving problems or creating solutions; collaborating within and beyond the classroom; developing deep understanding of content knowledge;

Assessment

Alternative assessment forms like project reports, journals, presentations, portfolios, exhibitions and demonstrations are especially effective for Inquiry-Based insturction.

Competences

Inquiry-Based Learning provides the following key competencies for lifelong learning:

- learning to learn: the ability to pursue and organise one's own learning;

- social skills; sense of collaboration;

- sense of initiative: the ability to turn ideas into actions.

Resources needed

Onsite Teaching & Learning	Online Teaching & Learning
Working spaces for students work groups	*Online databases and search engines for finding and research information on the topic*
Classroom for plenum sessions, preferably with student seats in circles or half-circles*)	*Online communication system to allow Q&As to/from teacher*
Equipment for presentations	*Virtual forum for students' discussions*
	Virtual forum for class discussions

References and Further Readings

1. Hutchings, W. (2007) *Enquiry-Based Learning: Definitions and Rationale*, University of Manchester retrieved on March 3, 2015 from http://www.ceebl.manchester.ac.uk/resources/papers/hutchings2007_definingebl.pdf

2. Teaching and Learning for Sustainable Future: Enquiry Learning
   http://www.unesco.org/education/tlsf/mods/theme_d/mod23.html

3. Queen's University. Centre for Teaching and Learning: Inquiry-Based Learning
   http://www.queensu.ca/ctl/resources/topicspecific/inquirybased.html

3.2. Case Method

Short description of the method

The Case Method, which was developed at Harvard Business School, is a form of instructor-guided, discussion-based learning. It introduces complex real-world scenarios into the classroom, typically through a case study with a protagonist facing an important decision. The Case Method represents a shift from the traditional, instructor-centered model of education to a participant-centered one in which students play a lead role in their own and each other's learning.

The aim of the Case Method is to enable learners quickly understand a complex problem, find a reasonable solution to it, and communicate that solution to others in an effective manner.

Relevance for LLL

Since it presents authentic cases and real world problems, Case Method fully complies with LLL courses and supports the development of some principal skills for life, like, communication, social, interpersonal, higher-level reasoning, problem solving, decision-making skills.

Procedures

The process is divided into three stages:

1. Individual study (Before class, professor provides a case; students have to read and analyze the case, and formulate a plan of action);

2. Group discussion (small-group (6-10 individuals) discussions and comparison of each others individual analysis);

3. Class discussion (discussion and debate on the case lead under the guidance of the professor).

Commonly used Activities

Dialogues, debates, role-plays are commonly used in Case Method.

Teacher's role

Teachers have very important role for the effective use of the Case Method. They act as experts and fascilitators in class discussions. The degree of their preparedness in very important. Teachers never know how the class discussion will turn out; they should expect all possible answers and moves from the students. Therefore, teachers should study the case very carefully and foresee almost all kinds of possible responses.

Student's role

Students are the co-creators of the learning process in the Case Method. They are responsible to prepare individual analysis of the case in advance; then discuss it in small study groups. During the class discussions, students are expected to participate as contributors and as listeners to help advance their own learning and that of their classmates. Ideally, learning should continue after class as students reflect on the discussion and apply insights and lessons in the broader context of their academic, professional, and personal lives. (Case Method in Practice. Retrieved from http://www.hbs.edu/teaching/case-method-in-practice/)

Assessment

Video-recording of the discussions; written reports on the case; individual oral examination.

Competences

Through discussions in small groups and class, an individual would:

- acquire new knowledge, and learn about skills and attitudes possessed by others;
- reflect on the applicability of their own knowledge, skills and attitudes or values;
- learn the art of listening to others, convincing others and social interaction in a group setting.

Resources needed

Onsite Teaching & Learning	Online Teaching & Learning
Working spaces for students work groups	*Online repository to make case descriptions available*
Classroom for plenum sessions, preferably with student seats in half-circles*	*Online communication system to allow for Q&As to/from teacher*
Equipment for video recordings of discussions	*Virtual forum for students' case discussions*
	Virtual forum for class discussions

References and Further Readings

1. Harvard Business School, Christensen Center for Teaching and Learning: Case Method in Practice. Retrieved on March 3, 2015 from http://www.hbs.edu/teaching/case-method-in-practice/

2. Harvard Business School, Christensen Center for Teaching and Learning: Inside HBS. The Case Method at HBS. Retrieved on March 3, 2015 from http://www.hbs.edu/teaching/inside-hbs/

3.3. Socratic Dialogue

Short description of the method

Socratic dialogue, which comes from the famous Greek philosopher Socrates, is one of the oldest and still very important, teaching technique focusing on developing critical thinking skills in learners. The method involves a dialogue between the teacher and students. The teacher or leader of the dialogue asks probing questions and the students use their experience and knowledge they already possess to solve the simple or more complex problems posed by the questions. Students can also ask questions in a Socratic classes.

With the help of the Socratic Method, it is possible to activate and engage students even in a classical classroom setting.

The Socratic dialogue is widely used in contemporary business and legal education by many educational institutions throughout the world.

Relevance for LLL

Socratic dialogue is applicable to LLL courses for several reasons: although Socratic questioning is mostly used with adult learners, if planned carefully, it is still possible to use it with younger learners; it also meets the demands for LLL courses to provide some key skills (such as communication, problem solving, decision-making, critical thinking skills, etc.) for individuals to face future challenges, and to be competitive in a world of constant change.

Procedures

At the beginning of a Socratic dialogue class, the teacher presents a scenario to the students. Then he/she leads by posing thought-provoking questions (students can also be ask questions of their own). The questions asked by the teacher or the leader of the dialogue are designed so that they direct the students' thought processes along pre-determined paths. In general, the inquiry in a Socratic dialogue is open-ended and there is no pre-determined answer which the teacher attempts to lead the students.

According to DTU (Technical University of Denmark) learningLab resources in a Dialogue-based teaching:

1. You should try to build up your lesson by *imagining a starting point in advance*: something which you think the students already know or believe. It could be a well-known example, procedure or concept or it could even be a popular common sense knowledge of the scientific topic you want to teach.

2. You should start the lesson (after introducing the topic of the lesson) by asking a question and then setting up the starting point from the answers you get. You might have to add something yourself to get the dialogue going in the direction you've planned.

3. In planning the lesson you have to be very specific about all the *points* you want your students to arrive at.

4. For each point you should have one or more questions leading up to this point. During the lessons you should give students time to reflect upon and then collect answers to the question. In summarizing the answers you should each time add the elements that lead up to the next point of the lesson, i.e. the next question.

5. This way you and your students together *construct the lesson in a series of steps, where each point is introduced by questions and answers* supplemented by the explanations and clarifications you have to add.

6. There are some difficulties and risks with this form. The process is very *time consuming* so you have to consider how many points you can cover in your lesson. The process is also demanding because you have to be *flexible* since you do not know in advance the answers students will provide during the lesson.

Commonly used Activities

Dialogues, debates, Socratic Circles/ Socratic Seminars.

Teacher's role

Many experts of the field point out that a teacher in a Socratic dialogue class is neither "the sage on the stage" nor "the guide on the side". Rather they are as much the participants as a guide in the discussion.

The teacher should also:

*   keep the discussion focused;
*   use probing questions for stimulating the discussion;
*   draw as many students into discussion as possible;
*   summarize the issues that has or has not been discussed and resolved.

Student's role

In a Socratic dialogue classes students are actively engaged in the dialogue and enquiry process. They are required to use their prior knowledge and experience in order to solve the problem / issue posed by the questions. In most cases the teacher is the one who leads the questioning, but students

can also formulate their own questions, especially in Socratic Circles: as a rule students lead the discussion and questioning here.

Assessment

Assessing students' performance is very important in a Socratic dialogue class. Both peer and teacher assessment can be used. Teacher summarizes and comments on the answers of the students.

Individual oral examination is also possible as a form of assessment.

Competences

- acquire new knowledge, and learn about skills and attitudes possessed by others;

- reflect on the applicability of their own knowledge, skills and attitudes or values;

- learn the art of listening to others, convincing others and social interaction in a group setting.

Resources needed

Onsite Teaching & Learning	Online Teaching & Learning
Classroom for plenum sessions, preferably with student seats in circles or half-circles	*System for web conferencing*
	Virtual forum for class discussions

References and Further Readings

1. Chapman, S. (The Socratic Method: Fostering Critical Thinking. Retrieved on March 12, 2015 from http://teaching.colostate.edu/tips/tip.cfm?tipid=53

2. DTU LearningLab teacher training materials

3. The Stanford University Center for Teaching and Learning (CTL) (2003), The Socratic Method: what it is and how to use it in the classroom. *Speaking of Teaching newsletter*, Fall 2003, Vol. 13, No.1. Retrieved March 12, 2015 from https://teachingcommons.stanford.edu/resources/teaching-resources/speaking-teaching-newsletter-archive

3.4. Problem-Based Learning (PBL)

Short description of the method

Problem-Based Learning (PBL) is an active learning approach in which individuals gain knowledge and skills through problem-solving. Students learn the content as they try to address the problem. Students often work in groups to investigate and seek solutions to a complex question, problem or challenge.

Like Inquiry-Based Learning, Case Method, and Project-Organized Learning, Problem-Based Learning is an inductive approach which generally supports learning process and motivation for

learning. Using inductive methods are useful because they provide an opportunity for students to relate to practical, real life experiences from their work and/or practical life.

The goals of PBL are: to help individuals develop effective problem solving, as well as collaboration skills; to support self-directed learning; to increase learner's intrinsic motivation.

Relevance for LLL

PBL fully complies with LLL demands since it provides model for lifelong learning, and supports building skills and abilities that are so valuable for today's world of constant change.

Procedure

Students are presented with a real-world problem / open-ended question. Students need to discover and learn the content that is necessary to solve the problem/challenge.

There are several essential steps for PBL procedure:

Seven-Step Problem Based Learning Procedure

1. Clarify terms & context

Does everybody completely understand this problem?

2. Define the problem

What is the interesting core of this problem in relation to the topic of the course?

3. Analyse the case

Brainstorm on what could be explored further in relation to this problem and clarify what we already know

4. Re-structure the problem

Get a systematic overview by grouping related ideas and removing not so interesting ideas

5. Formulate learning objectives

What do we need to learn in order to understand this problem?

6. Individual learning

Each student studies individually towards the learning objectives

7. Report back to the group at the next meeting

What have we learnt? Can we understand this problem now?

Commonly used Activities

PBL activities can include: laboratory or experiment assignments; problem solving; project work; study teams, and other activities.

Teacher's role

The role of the <u>instructor</u> is to facilitate learning by supporting, guiding, and monitoring the learning process.

Student's role

PBL helps students build competences that are vital in today's world, such as problem-solving, research, critical thinking, social, creativity and innovation.

Assessment

Teacher should provide detailed comments about each student's stregths and weaknesses, but self, as well as, peer-assessment is highly valuable for PBL.

Competences

- learning to learn: the ability to pursue and organise one's own learning;
- learn to deal with complex problems;
- social skills; sense of collaboration;
- sense of initiative: the ability to turn ideas into actions;
- learn to transfer knowledge to new situations.

Resources needed

Onsite Teaching & Learning	Online Teaching & Learning
Working spaces for students work groups	*Online databases and search engines for finding and research information on the topic*
Classroom for plenum sessions	*Online communication system to allow for Q&As to/from teacher*
Equipment for presenting the group work	*Virtual forum for students to discuss the assigned case/problem; to provide review and feedback*
Laboratories for group experiments	*Virtual forum for class discussions*
Library for researching relevant information to resolve the problem.	*Online management system for group negotiation and planning*

References and Further Readings

1. Queen's University. Centre for Teaching and Learning: Problem-Based Learning http://www.queensu.ca/ctl/resources/topicspecific/problembased.html

2. The Stanford University Center for Teaching and Learning (CTL) (2001), Problem-Based Learning. *Speaking of Teaching newsletter*, Winter 2001, Vol. 11, No.1. Retrieved March 12, 2015 from http://web.stanford.edu/dept/CTL/cgi-bin/docs/newsletter/problem_based_learning.pdf

3. Maastricht University: Problem-Based Learning. Retrieved from http://www.maastrichtuniversity.nl/web/Schools/UCM/TargetGroup/ProspectiveStudents1/ProblemBasedLearning.htm

4. DTU

3.5. Project-Organized Learning

Short description of the method

The idea behind project-based learning is that projects have multidisciplinary character in which groups of students work while developing lifelong learning skills.

In a Project-organized learning students can decide on their own project within the course theme, or the teacher provides some project ideas and each group chooses its project.

Relevance for LLL

The use of Project-organized learning has several benefits for LLL courses. 1. It can be used with students of all ages; 2. Can be flexible: does not necessarily mean working in a traditional classroom setting, and students can meet, interact and work wherever and whenever it is convenient for them; 3. Provides some key skills (Social, communication, interpersonal, decision-making, problem solving, leadership, trust-building skills) for individuals to meet the demands of today's constantly changing world.

Commonly used Activities

Some commonly used activities of Project-organized learning include: group work to solve challenging problems; problem solving; laboratory or experiment assignments; project work; study teams, and other activities.

Teacher's role

Instructor's role in Project-organized Learning is that of a facilitator.

In a Project-organized learning teachers should:

- support students by giving sufficient guidance and feedback;

- explain all tasks in detail;

- provide detailed directions for how to develop the project;

- answer questions and encourage student motivation.

Student's role

In a Project-organized learning students work in small, collaborative groups. They find sources, conduct research, and encourage each other to learn and complete the tasks.

Assessment

Teachers can use a combination of objective tests and rubrics to assess Project-organized learning. Process as well as the outcome of the project can be evaluated by the teacher. Individual and group assssment.

Competences

- learning to learn: the ability to pursue and organise one's own learning;
- learn to deal with complex problems;
- social skills; sense of collaboration;
- sense of initiative: the ability to turn ideas into actions;

Resources needed

Onsite Teaching & Learning	Online Teaching & Learning
Working spaces for students work groups	*Online repository to upload project descriptions, reports and presentations*
Classroom for plenum sessions, preferably with student seats in half-circles	*Online communication system to allow for Q&As to/from teacher*
Equipment for making PowerPoint presentation about the project	*Virtual forum for students project discussions*
Labs for conducting experiments	*Virtual forum for class discussions*
Libraries for researching relevant information to fulfil the project work	*Online management system for planning and negotiating project work*

References and Further Readings

1. Jensen, L.P., Helbo, J., Knudsen, M., & Rokkjær, O. (2003). Project-Organized Problem-Based Lerning in Distance Eduction. *The International Journal of Engineering Education.* Vol. 19, No. 5, pp. 696-700. Retrieved on March 12, 2015 from http://www.ijee.ie/articles/Vol19-5/IJEE1445.pdf
2. DTU LearningLab

3.6. Cooperative Learning

Short description of the method

Cooperative learning is an educational approach in which students team together in a cooperative learning groups to work on a shared task. Students depend on each other while they are engaged

in a common task: they discuss the material given to them, assisst each other to realize and understand the material, and encourage group members to work for successful completion of the shared task.

There are five basic elements for a successful cooperative activity (Johnson, D. W., Johnson, R., & Holubec, E. (1998):

1. **Positive interdependence:** group members should realize that they are closely linked with each other and they cannot succeed if others do not. It can be achieved through mutual learning goals, dividing roles and materials, etc.

2. **Individual accountability:** "students learn together, but perform alone".. each student is accountable for their learning and work.

3. **Face-to-face promotive interaction:** students ecourage and support each other: members promote each other's success by helping, assisting, praising their efforts.

4. **Social skills:** individuals learn interpersonal, social and collaborative skills.

5. **Group processing:** involves both taskwork and teamwork. After completing their task, group members discuss how well their group is functioning, achieving their goals and maintaining effective working relationships.

Relevance for LLL

Cooperative learning is applicable to LLL courses for several reasons: First of all, if planned carefully, Cooperative learning strategy can be used with learners of all ages; it also meets the demands for LLL courses to provide some key skills (such as communication, interpersonal, problem solving, leadership, decision-making, trust-building, conflict-management skills etc.) for individuals to face future challenges, and to be successful in a world of constant change.

Procedure

Students are grouped for instruction. Depending on the circumstances and objectives groups can be divided according to students' interests, social skills, instructional objectives, etc.

Once the students are grouped, teacher gives instructions: explains the objectives, tasks, and criteria for success; assigns student roles.

After students start work, teacher monitors and observes groups, assesses social skills, reinforces collaborative behaviors, interviews students.

Commonly used Activities

Collaborative learning activities can include: laboratory or experiment assignments; group projects; joint problem solving; debates; study teams; collaborative writing; and other activities.

Teacher's role

In a Cooperative classroom, the teacher's role changes from giving information to facilitating students' learning.

In formal cooperative learning groups teachers are responsible for (Johnson, D. W., Johnson, R. T., & Holubec, E. (2008):

1. making preinstructional decisions: decide on the objectives, tasks, group size, student roles, materials, etc.;

2. explaining the task and the positive interdependence;

3. monitoring students' learning and intervening to provide assistance in completing the task or increase student's interpersonal and group skills;

4. assessing students' learning and helping students process how well their groups functioned.

Student's role

Depending on the charateristics of a cooperative activity, teacher can assign (it is also possible to allow students pick their own roles) some of the following roles to students: organizer, team fascilitator, assessor, recorder, timekeeper, checker; spokesperson, summarizer, etc.

Assessment

1. Formative assessment: provides students with feedback on their working process; it leads to students realizing the need for improving their performance as team members.

2. Summative assessment: is used to judge final products, competency and/or demonstrated improvement.

Evaluation can be conducted (http://serc.carleton.edu/introgeo/cooperative/assess.html):

- by the instructor. The instructor provides students with feedback on the understanding of content, concepts, and applications;

- by the individual (Self-Assessment). Students can develop a better understanding of their learning process, a metacognitive perspective which enhance future learning, through active reflection on their achievements;

- by the peers. Allowing the opportunity for group members to assess the work of their peers provides important feedback on the relative merits of contributions and promotes cooperation as students realize their accountability to the group.

Competences

Cooperative learning provides some of the following key competencies for learners:

- learning to learn: the ability to pursue and organise one's own learning;

- learn to deal with complex problems;

- social skills; sense of collaboration;

- sense of initiative: the ability to turn ideas into actions.

Resources needed

Onsite Teaching & Learning	Online Teaching & Learning
Working spaces for students work groups	*Online communication system to allow Q&As to/from teacher*
Classroom for plenum sessions	*Onilne repository to upload worksheets, presentations, project works, etc.*
IT technology to prepare peer and group presentations, reports, etc.	*Virtual forum for students discussions*
	Virtual forum for class discussions
	Online management system to allow group negotiation and planning

References and Further Readings

1. Johnson, D. W., Johnson, R., & Holubec, E. (1998). Advanced cooperative learning (3rd ed.). Edina, MN: Interaction Book Co.

2. Johnson, D. W., Johnson, R. T., & Holubec, E. (2008) Cooperation in the classroom. (8th ed.). Edina, MN: Interaction Book Company

3. Johnson, D. W., & Johnson, R. T. Introduction to Cooperative Learning. Cooperative Learning Institute. Retrieved on March 12, 2015 from http://www.co-operation.org/home/introduction-to-cooperative-learning/

4. Oxford University Press ELT. Blended and cooperative learning in EAP. 10 July 2014. Retrieved on March 12, 2015 from http://oupeltglobalblog.com/2014/07/10/blended-and-cooperative-learning-in-eap/

5. Assessment of Cooperative Learning. Retrieved on March 12, 2015 from http://serc.carleton.edu/introgeo/cooperative/assess.html

3.7. Flexible Learning and E-learning

Short description of the method

Flexible Learning is often used synonymously with the terms: "e-learning", "blended learning", "distance learning", etc. They are closely related to each other.

Oxford Dictionary of Education (Wallace, 2015) suggests the following definitions to these terms:

Distance learning

A mode of learning designed to be undertaken without frequent or regular direct face-to-face contact between student and teacher.

E-learning

Learning facilitated by the use of computers, using the Internet, an institution's intranet, or material on disks.

Blended Learning

A combination of modes of learning. It is currently normally used to describe a combination of e-learning (or some other forms of distance learning) and face-to-face student-teacher contact.

Flexible Learning focuses on offering students choices about when, where and how they learn. It *provides opportunities to improve the student knowledge and skills through flexibility in time, pace, place (physical, virtual, on-campus, off-campus), mode of study (print-based, face-to-face, blended, online), teaching approach (collaborative, independent), forms of assessment and staffing (Staff flexibility in Flexible Learning can improve the way our programs operate and can help us attract and retain good staff. If we give teachers/professors the opportunity to decide hours of work, work location and the way work is carried out, we can attract more qualified and skilled staff for our course which will result in better learning possibilities for our students).*

Flexible Learning might use a wide range of media, learning spaces and technologies for learning and teaching. (Retrieved from http://blendedandflexiblelearning.wikispaces.com/what-is-bfl*)*

Flexible learning has some key characteristics. Here are five main dimensions that can help to describe and measure the type and amount of flexibility in a course:

(Retrieved from http://www.abdn.ac.uk/cref/uploads/files/FD_Flexible_Learning_JCaseyFINALWEB.pdf)

- time;
- content of the course;
- entry requirements;
- instructional approaches and resources;
- delivery and logistics.

Relevance for LLL

Due to its flexible nature FL meets the demands of LLL courses and especially demands of adult learners.

Flexible learning enables us to:

- meet the needs of a diverse range of adult learners;
- offer part-time study that could be attractive for sponsors;
- allow students to combine work, study and family;
- cater non-traditional students;
- help students develop skills to successfully adapt to change.

Teacher's role

Instructors might adopt several roles in flexible learning, but one of the most common is that of a fascilitator and lecturer.

Student's role

Flexible learning is a student-centred approach where learners are actively involved in the teaching-learning process and take responsibility for their own learning.

Assessment

Depending on the course various assessment methods can be used: tests; reports; oral examination; project works, etc.

Competences

- learning to learn: the ability to pursue and organise one's own learning.

E-learning is the use of electronic educational technology in learning and teaching. E-learning involves the use of electronic means to provide training, educational or learning material.

Resources needed

Onsite Teaching & Learning	Online Teaching & Learning
Working spaces for students work groups	*Online repository to make instructional materials available*
Classroom for plenum sessions	*Online communication system to allow Q&As to/from teacher*
Equipment for: video conferencing; making presentations; using audio and video study materials	*Virtual forum for students discussions*
Equipment for	*Virtual forum for class discussions*
Libraries and Labs for conducting research and experiments	*Online system for web conferencing; webcasting;*
Alternative format learning resources and specialized equipment for students with disabilities (like, Braille, audio and e-text for blind and visually impaired students)	*Online systems to provide access to instructional materials for students with disabilities*

References and Further Readings

1. Wallace, S. (Ed.). (2015). A Dictionary of Education (2nd ed.). Oxford: Oxford University Press.
2. University of Birmingham. Retrieved on March 12, 2015 from http://www.birmingham.ac.uk/schools/education/courses/flexible-learning.aspx

3. The Higher Education Academy. Inspiring Teaching, Transforming Learning: Flexible Learning. Retrieved on March 12, 2015 from https://www.heacademy.ac.uk/workstreams-research/themes/flexible-learning

4. http://blendedandflexiblelearning.wikispaces.com/what-is-bfl

5. http://www.abdn.ac.uk/cref/uploads/files/FD_Flexible_Learning_JCaseyFINALWEB.pdf

3.8. Field-Based Learning

Short description of the method

Generally adults spend a considerable time acquiring information, learning and experimenting something new. For many other reasons they use different ways (methods) to create new knowledge in their desired field. Most research, learning and teaching process occur in a classroom, laboratory, computer room or sometimes in the library (1). Field-based learning involves course work or experiences that take place outside the laboratory or classroom, as in the earth science, ecology and even in environmental science   "working in the field" means going outside and making observations and take samples of objects, structures, processes and phenomena, using the human senses and instrumental sensors. The features of interest include rock formations, soil, weather, plants, animals, and landforms, bodies of water, the interrelations among these, and the processes by which they change through time or vary across space, either naturally or due to anthropogenic influences (2). As in the social science "working outside" can be defined as going outside and making surveys, interview the society and sum the results.

Relevance for LLL

Field –based Learning can be considered as the relevant method for LLL courses for several reasons: First of all, it can be used with the learners of different ages. On the other hand, exact method provides to develop several skills (such as finding and clarifying the information, making decisions, making analysis and assessments).

Learning materials could include

- tools;
- computer;
- journals;
- artifacts;
- natural resources etc.

Commonly used Activities

- logs or journals;

- critical analysis of field experiences;

- term papers synthesizing scholarly literature and the field experience;

- pre and post assessments;

- group interviews;

- performance assessments (1).

Teacher/student role

Teachers and students are actively involved in the learning/teaching process. Teacher's role is to be a participant or an expert, students are observers and at the same time they are participated actively in all above mentioned learning activities.

Assessment

It can be relevant to mention that alternative assessment forms of field–based learning can be journals (I mean to evaluate the process of observation).

Field –based learning demonstrate higher level of knowledge rather than working in the laboratory or in the classroom. To sum up, real world activities provide learner-centered experience and field experiences help students develop a feel for Earth processes, a sense of scale, an eye for significant features, an ability to integrate fragmentary information of different types from different localities.

Competencies

These are **competencies** that empower learners to:

- understand the competencies they need to master to achieve their goals;

- progress through learning processes at a flexible pace;

- explore diverse learning opportunities;

- collaborate in learning activities with communities of peers and mentors;

- create learning artifacts that represent their competencies;

- reflect on their own learning achievements;

- develop a professional identity, including the ability to manage competencies and portable evidence of learning from multiple sources (4).

Resources needed

Onsite Teaching & Learning	Online Teaching & Learning
Working spaces for students work groups	*Online databases and search engines for finding and research information on the topic*
Classroom for plenum sessions, preferably with student seats in circles or half-circles*)	*Online communication system to allow Q&As to/from teacher*
Labs for conducting experiments	*Virtual forum for students' discussions*
Equipment for presentations	

References and Further Readings

1. http://www.usask.ca/gmcte/resources/teaching/strategies_experiential/field-based-learning

2. http://serc.carleton.edu/research_on_learning/synthesis/field.html

3. http://www.usask.ca/gmcte/resources/teaching/strategies_experiential/field-based-learning

4. http://blog.blackboard.com/competency-based-learning-key-characteristic-learner-centric/

3.9. Self-Directed Learning

Short description of the method

According to Self-directed learning, the process of learning takes place at the learner's initiative, even if available through formal settings. In essence, self-directed learning is seen as any study form in which individuals have primary responsibility for planning, implementing, and even evaluating the effort.

Several things are known about self-directed learning:

a) individual learners can become empowered to take increasingly more responsibility for various decisions associated with the learning endeavor;

b) self-direction is best viewed as a continuum or characteristic that exists to some degree in every person and learning situation;

c) self-direction does not necessarily mean all learning will take place in isolation from others;

d) self-directed learners appear able to transfer learning, in terms of both knowledge and study skill, from one situation to another;

e) some educational institutions are finding ways to support self-directed study through open-learning programs, individualized study options, non-traditional course offerings, and other innovative programs.

As a matter of fact, it is important to explain the term "Self-directed learning". In our case, Self-directed learning is an instructional process "in which individuals take on the responsibility for their own learning process by diagnosing their personal learning needs, setting goals, identifying resources, implementing strategies and evaluating the outcomes (3).

The goals, the process, and the learner are the main categories involved in self-directed learning. In an adult learning context, the goals are generally self-determined, as is the process. Self-directed learning can be enhanced with facilitation, particularly through providing resources. Motivation is a key to a successful self-directed learning experience. (2)

Relevance for LLL

Hence, there are number of reasons that can be detected the relevance of the method to the LLL course. It supports to:

- develop of some learning endeavors;
- proves the communication, social, interpersonal and decision-making skills;
- enlarge the motivation of any age of learner.

Commonly used Activities

Self-directed study can involve various and fertile activities and resources, such as:

- self-guided reading;
- participation in study groups;
- internships;
- electronic dialogues;
- reflective writing activities.

Teacher's role

Of course, effective roles for teachers in self-directed learning are possible, such as:

- dialogue with learners;
- securing resources;
- evaluating outcomes;
- promoting critical thinking.

Student's role

- take initiate;
- evaluate learning experiences themselves;
- make decisions;
- take responsibilities.

The main **competences** are:

- to develop the sense of initiative;

- to understand the competencies they need to master in achieving their goals;

- to have the ability to make the progress through learning process;

- to have the ability to explore diverse learning opportunities;

- to take responsibility for their learning process;

- to make the reflection on their own learning achievements.

Resources needed

Onsite Teaching & Learning	Online Teaching & Learning
Working spaces for students work groups	*Online repository to make instructional materials available*
Classroom for plenum sessions	*Online communication system to allow Q&As to/from teacher*
Equipment for Libraries and Labs for conducting research and experiments	*Virtual forum for students discussions*
	Virtual forum for class discussions
	Online systems to provide access to verious information

References and Further Readings

1. Hiemstra, R. (1994). Self-directed learning. In T. Husen & T. N. Postlethwaite (Eds.), *The International Encyclopedia of Education* (second edition), Oxford: Pergamon Press. Retrieved from: http://home.twcny.rr.com/hiemstra/sdlhdbk.html 18.03.2015

2. http://epltt.coe.uga.edu/index.php?title=Adult_Learning#Self-Directed_Learning

3. Rager, K. B. (2003). The self-directed learning of women with breast cancer. Adult Education Quarterly. v. 53, no. 4, p. 277-293.

3.10. Case Study

Short description of the method

It is generally believed that the case-study method was first introduced into social science by Frederic Le Play in 1829.

In the social sciences and life sciences, a case study is considered to be a research method involving an up-close, in-depth, and detailed examination of a subject of study (the case), as well as its related contextual conditions. Although no single definition of the case study exists, case-study research has long had a prominent place in many disciplines and professions, ranging from psychology,

anthropology, sociology, and political science to education, clinical science, social work, and administrative science.

The "case" being studied may be an individual, organization, event, or action, existing in a specific time and place. According to Thomas "Case studies are analyses of persons, events, decisions, periods, projects, policies, institutions, or other systems that are studied holistically by one or more method. The case that is the subject of the inquiry will be an instance of a class of phenomena that provides an analytical frame - an object - within which the study is conducted and which the case illuminates and explicates."

Three types of cases may thus be distinguished:

1. key cases;

2. outlier cases;

3. local knowledge cases.

It is very important to mention that the case study is sometimes mistaken for the case method used in teaching, but the two are not the same.

Relevance for LLL

Since the method itself presents not only the authentic cases, but real world problems. From this point of view it fully complies with LLL courses. There are number of other reasons why Case Study can be considered the relevant method for LLL course. It supports and develops lots of important learners' skills, those help and play great role in any aged learners' learning process.

 and supports the development of some principal skills for life, like, communication, social, interpersonal, higher-level reasoning, problem solving, decision-making skills.

Procedure:

1. First of all an interesting subject is selected in any case study. Then revealing circumstances are represented.

2. After selecting a subject for a case study, learners will therefore use information-oriented sampling, as opposed to random sampling.

3. Whatever the frame of reference for the choice of the subject of the case study (key, outlier, local knowledge), there is a distinction to be made between the chosen unity through which the theoretical focus of the study is being viewed. The object is that theoretical focus – the analytical frame.

4. The case has to be proposed according to its typology. For the case study wherein purposes are first identified (evaluative or exploratory), then approaches are delineated (theory-testing, theory-building or illustrative).

5. Then processes are decided upon, with a principal choice being between whether the study is to be single or multiple, and choices also about whether the study is to be retrospective, snapshot or diachronic, and whether it is nested, parallel or sequential.

6. A case report is presented.

Teacher's role

Teachers take on a variety of roles:

- the teacher is in complete charge of what students do (controller);
- s/he starts the process of case study;
- analyzes the case;
- defines the typology (organizer);
- defines the principal choice of the case study and works with the students (participant).

Student's role

- students learning to learn and acquire the new knowledge;
- work actively and follow the teachers suggestions/commands;
- they help each other when possible.

Assessment

written reports, individual /personal oral examinations.

Competences:

- strategic Planning

- planning and Organizing/Problem Solving

- analytical Thinking

- project Management

- listening

- task Implementation

Resources needed

Onsite Teaching & Learning	Online Teaching & Learning

Working spaces for students work groups	*Online communication system to allow Q&As to/from teacher*
Libraries for researching relevant information	*Onilne for seaching the relevent information*
Equipment for presenting the work	*Virtual forum for students discussions*
	Virtual forum for class discussions

References and Further Readings

1. http://en.wikipedia.org/wiki/Case_study 22.03.2015

3.11. The Spiral Method

Short description of the method

The basic principle of the Spiral approach is to minimize project risk by breaking a project into smaller segments and provide more ease-of-change during the development process, as well as provide the opportunity to evaluate risks and weigh consideration of project continuation throughout the life cycle. (2)

Relevance for LLL

As the main principles of the method are based on the development of the learners' several skills (such as communication, problem solving, decision-making etc) it can be considered as one of the important and relevant method for LLL course.

Procedure:

According to Bruner spiral curriculum refers to the idea of revisiting ideas over and over, building upon them and elaborating to the level of full understanding and mastery.

According to DTU (Technical University of Denmark) the teaching process can be subdivided into several sections or so called "windings" in a spiral. In each winding the course subject is approached both from top (overview) and bottom (details).

In the first winding the students work with the course subject in a very basic way. Elements from all of the course topics are included and a general overview of the course subject is given – i.e. the topics are not dealt with one at a time like the chapters of a typical textbook. The students are given

group assignments to solve based on their present knowledge – maybe only in a qualitative way the first time depending on the subject.

In the following windings the students work with the subject in increasingly advanced ways. It might be the same problem they are given in each winding – but the solution becomes more and more sophisticated and at a higher level of competency. In the last winding the final level of competence (learning objectives) is reached.

It is extremely important when applying this method to provide the students with feedback on their learning progression so they become aware of their present knowledge. Thus, they can focus on their learning and learn more in the next winding. (4)

In conclusion, in its most basic explanation, spiral learning is just introducing a topic, touching on it for a short time and then moving on. The premise is that a subject isn't learned the first time around and the student can pick up more information the second time. With each learning session, the student will expand on their skill level and build new understanding. The theoretical idea is that brief exposure to a topic, then revisiting it, allows students to construct their own understanding on a basic framework.(1)

Teacher's role:

- tutor s/he acts as a coach when students are involved in project work or self-study. The teacher provides advice and guidance and helps students clarify ideas and limit tasks.

- at the same time the teacher may be an expert.

Student's role

Students learn to learn and take the responsibility for their own learning and its process.

Assessment

The assessment is that we increase the quality of students learning and the ways in which we measure it. We'll be moving in upwards in the spiral.(3)

Competences

- the very first course in any program learners develop their education and training, equipping them for an experienced person's life, particularly for working life, whilst forming a basis for further learning;

- learners throughout their lives, through a process of developing and updating skills;

- at last to sum up learners learn to learn and learn to take responsibility for their own learning .

Resources needed

Onsite Teaching & Learning	Online Teaching & Learning
Working spaces for students groups or individual works	*Online communication system to allow Q&As to/from teacher*
Classroom for plenum sessions	*Onilne for seaching the relevent information*
Libraries for getting the relevant information	*Virtual forum for students discussions*
Equipment for presentations	*Virtual forum for class discussions*

References and Further Readings

1. http://charterschools.lifetips.com/tip/156717/education-models/education-models/what-is-spiral-learning.html 19.03.2015

2. http://www.pinnaclemanagement.com/spiral-method-and-evms/279 23.03.2015

3. http://www.academia.edu/1390639/Assessment_Spiral 23.03.2015

4. DTU LearningLab teacher training materials

Descriptions of best practice examples from partners

Armenian National Agrarian University (ANAU)

Inquiry-Based Learning

Contact Person : Daveyan Smbat

E-mail: inter@anau.am

A link to the course description (if it exists online): N/A

Short description of how the method is applied

Nowadays our university, preserving the traditional methods of education, applies modern methods especially student-centered ones which promote the development of learners' higher order thinking

skills, individual and team work, critical and logical thinking, the ability to analyze the problem from different angles, etc.

Procedure

1. The lecturer introduces a topic and gives some general information about it;

2. Working individually the learners gather more information about the given topic;

3. Creating small groups the learners discuss the topic together;

4. Learners present the written form of their investigation to the lecturer or make presentations;

5. There is a class discussion guided by the lecturer;

6. Evaluation of the learning outcome is done by the lecturer.

Resources used

Computers, projectors, E-library, online lectures, Research Institute of Foodstuff Technologies, Food Security and Biotechnology, Research Institute of Agriculture Mechanization, Electrification and Automobile Transportation, Scientific Center of Agrobiotechnology, Scientific center of Viticulture, Fruit Growing and Wine Making, Scientific Center of Soil Science, Land-Reclamation and Agrochemistry named after H. Petrosyan, "Balahovit" and "Voskehat" Teaching-Experimental Farms, Milk and Dairy Processing Teaching-Experimental Factory.

Activities and Tasks used

Field-work, investigations, reports, research projects, individual and group projects, laboratory and experiment assignments, debates, laboratory experiments, tasting and other activities.

Teacher's role

The lecturers play a very important role during the course. They guide and motivate learners, monitor the learning process. The lecturer comes forth as a mentor, supervisor, collaborator, coordinator, researcher and instructor.

The duty of the lecturer is as follows:

1. Starting the inquiry process;

2. Promoting learners' discussions;

3. Guiding classroom discussions in order to avoid misconceptions and misunderstandings;

4. Assisting the learners to understand the topic thoroughly;

5. Modeling and monitoring scientific procedures.

Learner's role

Learners are actively involved in the learning process. They work both individually and in groups, develop social skills, organize their own learning, learn to turn ideas into actions, deal with complicated problems and find actual solutions.

Assessment

Among alternative assessment forms are reports, presentations, demonstrations, laboratory experiments and tasting (depending on the course).

Evaluation of the learning process is done only by the lecturer.

All the methods are applicable and effective depending on the course. Inquiry-based learning is applied in our university. It is a comprehensive teaching method involving also field-based learning which is very important in the sphere of agriculture.

Gavar State University (GSU)

1. Flexible learning and E-learning

Contact Person : Lilit Torchyan

E-mail: lilit.torchyan.87@mail.ru

Tel: +374 60 46 12 42

Useful links: http://elearning.gsu.am/?lang=hy

http://library.gsu.am/

Short description of how the method is applied

Three years long Gavar State University has been applying the method of Flexible learning and E-learning in the Part-time Education Department and in LLL study programs, particularly while conducting English language lessons for adults, teaching Basics of Informatics and Computer Skills, as well as Print and Electronic Journalism. In general, the above-mentioned study programs meet adults' educational demands and take into account their experience and level of their prior learning. Application of this method in LLL and Part-time Education study programs is efficient in as much as it enables:

1. to overcome the restrictions in time and place;

2. to apply flexible and complex approach, applying different complementary teaching methods;

3. to apply the opportunities provided by information and communication technologies thanks to the innovative nature of this method.

An electronic learning system "E-learning GSU" has been created which operates to implement the study programs by this method efficiently. To access this system each student is given a login and password. Having an access to this system learners:

1. get acquainted with general description of the course, learning outcomes, the expected competences: knowledge, skills and abilities that learners should posess at completion of the course;

2. get acquainted with the course structure, credits and duration;

3. get the electronic version of lectures having the opportunity to study the course content any time they want;

4. have an access to useful materials regarding the course, presentations, graphics, webinars and video materials;

5. get the bibliography and references on the given course;

6. receive questionnaires to make a current and intermediate assessment of their knowledge;

7. receive questionnaires on final assessment of their knowledge;

8. have an opportunity of maintaining feedback with their lecturers through e-mail and video calls.

Resources used

First of all, the most important resources are considered to be the lecturers who provide the electronic learning system with the necessary lectures and learning materials. The "E-learning GSU" system itself is a very useful resource thanks to its flexibility and capacity. Among other resources the following can be listed:

1. "E-library GSU" which operates along with "E-learning GSU" system;

2. traditional library;

3. the entire GSU equipment: computer laboratories, lecture halls, etc.;

4. financial resources to conduct courses;

5. logistics.

Activities and tasks used

All the students taking the course are explained the significance, structure and instructions how to use "E-learning GSU" system. Lecturers and students get in touch with each other online and offline. Learning process is accompanied with using different teaching methods and educational technologies. This method is of a complex nature as it implies using a wide range of other methods like: Brainstorming, Dialectic Decision Making /DDM/ or Socratic Method, Problem and Solution Tree Method, Complementary Method, Teamwork and Case Studies.

Tasks and Computer tests are given by the appropriate lecturers on given topics along with assessing the written and oral tasks.

Teacher's role

The gist of teacher's role is in:

1. providing electronic materials;

2. assigning tasks;

3. assessing tasks;

4. providing electronic materials;

5. maintaining a feedback with learners;

6. applying different teaching methods and educational technologies;

7. testing and assessing learners' knowledge;

8. improving the learning process.

Learner's role

The gist of learner's role is in:

1. getting acquainted with the course description and learning outcomes;

2. studying by means of "E-learning GSU" system;

3. working with lecturers using different educational methods;

4. performing tasks;

5. working independently on "E-library GSU";

6. maintaining a constant feedback with lecturers and other students;

7. occasionally making a current and intermediate self-assessment of their knowledge;

taking part in the final assessment by lecturers, like: taking exams, bringing suggestions regarding the course and facilitating the course improvement process.

Assessment

Assessment process is carried out in three stages: current, intermediate and final assessment. The testing and assessment of knowledge is carried out in the following ways:

1. assessment by students;

2. assessment by lecturers;

3. electronic assessment carried out in the form of computer tests within "Examination GSU" system.

During the third form of assessment, both testing and assessment are carried out without a lecturer – automatically.

An alternative assessment may be organized at students' request in oral and written /paper-based, internet-based/ forms or by menas of tests.

2. Field-Based Learning

Short description of how the method is applied

Field-based method is widely used in Cartography and Cadastral Case, as well as Tourism departments of Gavar State University Natural Sciences Faculty as the mentioned professions have a practical direction. Apart from theoretical courses, students are offered practical work, which is carried out applying the field-based method. While taking the course, the student gets acquainted with the issue theoretically first and then by this method he strengthens his knowledge practically gaining necessary applied knowledge and capacities. This method enables the Cartography and Cadastral Case students:

1. to carry out land measuring and area study;

2. to study field and water basins and identify the difference between them;

3. to study the soil types and reveal the differences between them;

4. to determine the cadastral value of the land;

5. to study the composition of rocks, lithosphere, strips of land and orogenies and the terrain cartography.

Field-based method enables the Tourism students:
1. to study the operating routes of tourism;

2. to learn how to design new tourist pathways;

3. to learn how to work in information tourism industry;

4. to get acquainted with Historical, Ecological, Rural, Educational, Scientific, Cultural and Gastronomic Tourisms, as well as with other different types of tourism;

5. to learn to work as a tourist guide, receptionist, tour advisor, etc..

Tourism department students learn to work with tourists, conduct Eco Ad campaigns and master the peculiarities of their profession in real-life scenarios.

Resources used

The academic staff having a professional qualification and an experience of practical work is the most valuable resource. Among other important resources the following can be listed:

1. natural resources, natural memorials, Geghama Mountains located in Gegharkunik region, Lake Sevan, other lakes and rivers;

2. historical and cultural resources, especially Noratus Cemetry – the cluster of crosstones being unique in the world, social substructures of the region /hotels, hostels, inns, etc./;

3. tour operators, information tourism offices and travel agencies cooperating with Gavar State University;

4. financial resources;

5. material and technical resources.

Activities and tasks used

Students are given tasks on the subject of inquiry. Examples are listed below:

1. land measuring;

2. determination of layers composition;

3. working in hotels, tour operator's offices or other places;

4. working with tourists practically, etc.

Teacher's role

The gist of teacher's role is in:

1. formulating and assigning tasks;

2. guiding and having a control over the field work;

3. testing and assessing learners' knowledge;

4. maintaning a feedback with learners;

5. improving the teaching methods.

Learner's role

The gist of learner's role is in:

1. mastering the course theory;

2. integration in the practical work applying this method;

3. performing tasks and gaining experience;

4. maintaning a feedback with lecturers and other learners;

5. facilitating the application and improvement of the method.

Assessment

Assessment process is carried out in three stages: current, intermediate and final assessment. The testing and assessment of knowledge is carried out in the following ways:

1. assessment by students;

2. assessment by lecturers;

3. electronic assessment carried out in the form of computer tests within "Examination GSU" system.

Learners' knowledge is assessed based on performed tasks and taking into account the knowledge and capacities gained at completion of the course. Knowledge testing can be both oral and written, as well as based on the results of solving practical issues and tasks. In this case,

summative assessment is applied. If the student has worked with a tourist or a tour operator, the assessment is done based on their opinions.

Ilia State University (ISU)

1. Inquery-Based Learning
2. Project-Organized Learning

Contact Person : Prof. Dr. Marika Kapanadze

E-mail: marika_kapanadze@iliauni.edu.ge

A link to the course description (if it exists online): N/A

Short description of how the method is applied

Inquery based learning, Project organized learning -these two methods are applied with the bachler students at Ilia State University. The courses are - Inquery based learning on the examples of science learning and Students' active learning in science.

Resources used

Printed materials prepared by the teacher, books, manuals, laboratory equipment at SALiS laboratory

Activities and tasks used

Problem based activities, laboratory investigations, and group research projects.

Teacher's role

Teacher is a motivator, guide, facilitator, researcher, mentor, collaborator, supervisor, etc.

One of the most important responsibilities of teachers in Inquiry-based classes is to adapt the process to the abilities and the knowledge of their students. Teacher is responsible for:

1. starting the inquiry process;

2. promoting student dialog;

3. transitioning between small groups and classroom discussions;

4. intervening to clear misconceptions or develop students' understanding of content material;

5. modeling scientific procedures and attitudes;

6. utilizing student experiences to create new content knowledge;

7. support students by giving sufficient guidance and feedback;

8. provide detailed directions for how to develop the project;

9. answer questions and encourage student motivation.

Learner's role

Inquiry-based learning involves learners: developing questioning, research and communication skills; solving problems or creating solutions; collaborating within and beyond the classroom; developing deep understanding of content knowledge;

Inquiry-based learning provides the following key competencies:

- learning to learn: the ability to pursue and organize one's own learning;

- social skills; sense of collaboration;

- sense of initiative: the ability to turn ideas into actions.

Students work in small, collaborative groups. They find sources, conduct research, and encourage each other to learn and complete the tasks. They learning to learn: the ability to pursue and organise one's own learning, learn to deal with complex problems.

Assessment

Presentations, demonstrations, rubrics, individual assessment.

Kharkiv National University of Radioelectronics (KNURE)

1.   The Flexible Learning and E-learning

Contact Person: Revenchuk Ilona assoc.prof., Director of the Centre of Postgraduate Education KNURE

E-mail: inter@anau.am

A link to the course description (if it exists online):

Links: Center of Postgraduate Education (CPE)

http://nure.ua/en/education/training-forms/postgraduate-education/

Center of Distance Education Technologies (CDET)

http://nure.ua/en/education/training-forms/distance-learning-technologies/

Test Center (TC)

http://nure.ua/en/education/training-forms/distance-learning-technologies/test-center/

Distance learning support technology http://dl.kture.kharkov.ua/

Short description of how the method is applied

KNURE pioneered the development of distance learning in Ukraine. It has a high expertise in introduction of innovative technologies into education and business.

System of Correspondence form Education by using Distance Technology for adults has Implemented in KNURE as structure with: Center of Distance Education Technologies (CDET), Test Center (TC) and Center of Postgraduate Education (CPE).

The CDET experts has developed regulatory and methodology basis for distant education technologies implementation. They regularly hold internal and external workshops on distant education.

The main aims of the CDET are:

- participation in single education space formation;

- implementation of innovative educational computer and telecommunication methodologies;

- design of multimedia technologies for education resources production (distant education courses development and their expertise and certification;

- development of computer knowledge test system OpenTest (OpenTEST2 - a computer program designed to test knowledge for summarized control of quality of knowledge of students from the major training organizations with complex distributed structure).

There are several web-sites for distant education on retraining, correspondence education, individual student work.

The TC created with the aim of developing and implementing of technologies of computer-based knowledge testing.

The main function of the TC are:

- the organization and coordination of work in the field of development and implementation of a unified system of computer-based knowledge testing at the University;

- development and approval of the regulatory framework for computer-based testing;

- the development and implementation of software for computer testing system of the University;

- maintenance of the unique server of computer testing;

- carrying out consultations and training seminars with faculty and staff of the University;

- help giving during scheduled activities for computer testing knowledge;

- examination of the test items;

- quality control of the computer testing activities;

- saving the information about passed computer tests.

The Basic activity of the CPE is to provide such educational services for adults:

- retraining of specialists (full time and distant);

- distant Master Degree, specialties: Software Engineering; System Software; Artificial Intelligence Systems; Security of Information and Communication Systems; Security of State Information Resources; Information Communication Network;

- courses of Professional Development on basic majors (full time and distant).

Resources used

financial, human, intellectual, physical.

KNURE has used myMoodle, Iersus and OpenTest software for this educational process.

Activities and tasks used

Distance Learning is the delivery of educational services where students are in one location and the instructor in another. It can include educational services delivered through cable or satellite hook-ups, the Internet, or an institution's intranet.

Distance Education is instructional delivery that does not constrain the student to be physically present in the same location as the instructor. Historically, Distance Education meant correspondence study. Today, audio, video, and computer technologies are more common delivery modes. The term Distance Learning is often interchanged with Distance Education. However, this is inaccurate since institutions/instructors control educational delivery while the student is responsible for learning. In other words, Distance Learning is the result of Distance Education.

Flexible learning focuses on offering students choices about when, where and how they learn. It provides opportunities to improve the student knowledge and skills through flexibility in time, pace, place (physical, virtual, on-campus, off-campus), mode of study (print-based, face-to-face, blended, online), teaching approach (collaborative, independent), forms of assessment and staffing. It might use a wide range of media, learning spaces and technologies for learning and teaching.

Due to its flexible nature FL meets the demands of LLL courses and especially demands of adult learners. Especially for military and working people who want to expand their knowledge in IT and Radioelectronic fields, etc.

Type and amount of flexibility in a course was described as:

- Time –course duration, as usually for retraining program is 60 ECTS per/ year.

- Content of the course:

– theoretical study (53 ECTS credit) for subjects in on-line (consultation by theoretical part, laboratories part and practical part) and student self-study. The volume of theoretical training which

provides basic qualification is 13 ECTS credits. The block of disciplines which provides advanced training is 40 ECTS credits;

– preparation of a term project (1 ECTS credit);

– undergoing a pre-diploma training (2 ECTS credits);

– preparation of a Specialist's Graduation Thesis (4 ECTS credits).

Credits are awarded to a student in case of the successful assessment of the education courses (written/ oral tests or exams), positive evaluation of a term project, positive evaluation of a pre-diploma training report. A final state attestation includes defence of a Specialist's Graduation Thesis.

- Entry requirements:

Diploma of Specialist/Master, skills PC user and the Internet, first education - technical (preferably, but not necessarily).

- Instructional approaches and resources;

Learning resources: Lersus Learning material in MyMoodle system, test in OpenTest system, Internet for the teachers, Software and hardware for Learning support.

- Delivery and logistics.

The educational program based on educational qualification characteristics and vocational training programs of speciality with competences and skills. Training program is based on the structural study of logical connections disciplines.

Teacher's role

Teacher might adopt several roles in flexible learning, for example, Consultant, Tutor, Teacher.

Learner's role

Student actively involved in the teaching learning process and take responsibility for their own learning.

They know as to learn: the ability to pursue and organize one's own learning;

E-learning is the use of electronic educational technology in learning and teaching. E-learning involves the use of electronic means to provide training, educational or learning material.

Assessment

Depending on the course various assessment methods can be used: traditional as well as alternative assessment. We used 100 point scale assessment for exam

National grade	ECTS	Marks, %
Excellent	A	90–100
Good	B	75–89
Satisfactory	C	60–74
Fail	D	0–59
Passed	E	60–100
Fail	Fx	0–59

2. Project-Organized Learning

in KNURE as example of Agile Software Design course

Contact Person: Shatovska Tetyana

E-mail: shatovska@gmail.com

This type of learning is implemented within the courses of Center of Postgraduate Education (CPE) for adults. This course brings together research expertise, academic experience and experts from industry to develop advanced skills of adults in the field of social media and web technologies.

The benefits of this course are threefold:

- For students: To enrich their studies by meeting companies and working with real life "business dilemmas";

- For companies: To use young, creative minds to develop solutions and turn "business dilemmas" into business opportunities;

- For the academy: To further develop master studies by adding interdisciplinary projects across departments.

Short description of how the method is applied

Companies' gives students a real life "business projects" which should be solved using technologies delivered within the course. Students forms the group by themselves, choose a type of "business projects" to solve.

Teacher provides all needed instructions, guidelines of how to move throw the course as well company's representatives gives also their instructions of how the projects will be evaluated from their perspective.

During the project life cycle students should pass several stages of the project and each stage usually evaluated by teacher and by company's representatives. Each week teams reported to company's representatives and gets support from company's representatives as well.

In the middle of the course each student's team present mid-term project results to pass the middle course deadline.

All project materials are shared amoung students using Moodle systems. Also all student's team uses on-line web systems to save all prject materials, so company's representatives as well as teacher have access.

 In the end of the course each student's team presented the Project for teacher and company's representatives. The final grade dependes from all evaluations during the course, so it looks like integrated evaluation.

After the course Company's representatives gives Company certificate to best studen's teams and invites studets to get internship in the Company with future employment.

Resources used

financial, human, intellectual, physical. Company human resourses used

KNURE has used myMoodle, lersus and OpenTest software for this educational process.

Activities and tasks used

- self-guided reading;
- participation in study groups;
- internships; electronic dialogues;
- reflective writing activities;
- critical analysis of field experiences;
- pre and post assessments;
- group interviews;
- artifacts;
- performance assessments.

Teacher's role

- support students by giving sufficient guidance and feedback;
- explain all tasks in detail;
- provide detailed directions for how to develop the project;
- answer questions and encourage student motivation;
- intervening to clear misconceptions or develop students' understanding of content material;
- utilizing student experiences to create new content knowledge.

Learner's role

- learning to learn: the ability to pursue and organise one's own learning;
- learn to deal with complex problems; · social skills; sense of collaboration;
- sense of initiative: the ability to turn ideas into actions;
- take initiate with dialog with Companies;

- evaluate learning experiences themselves;

- make decisions;

- take responsibilities of the team.

Assessment

In the end of the course each student's team presented the Project for teacher and company's representatives. The final grade dependes from all evaluations during the course, so it looks like integrated evaluation.

National Technical University of Ukraine Kyiv Polytechnic Ins. (NTUU)

Problem-Based Learning (PBL)

Contact Person: Sergii Stirenko

E-mail: stirenko@yandex.ua

A link to the course description (if it exists online): http://lpi.kpi.ua

Use Case of Problem-Based Learning (PBL): Linux Professional Institute at NTUU (LPI NTUU)

Short description of how the method is applied

The Linux Professional Institute at NTUU (LPI NTUU) is organized for anyone with the limited preliminary knowledge of computer science to grow their career opportunities by providing professional resources and skills certifications. LPI NTUU is working to provide services to enhance, develop and further lifelong professional careers in Linux and Open Source technologies, and ensure its learners have the skills required to be competitive in the global workplace and. The Problem-Based Learning (PBL) is used in LPI NTUU. The courses are organized around the typical practical problems, which appear during maintenance and administering tasks for small to medium–sized mixed Linux networks.

Resources used

Two computer classes are used with pre-installed Linux versions (Ubuntu, Debian, and CentOS) and Internet connection. Students are organized in small groups (<10 students per group). The more detailed description of LPI NTUU and its courses can be found at http://lpi.kpi.ua; contact person Sergii Stirenko (stirenko@yandex.ua).

Activities and tasks used

Activities include: laboratory or experiment assignments; problem solving; study teams, and other activities around the following specific tasks inside the courses.

LPIC-1: Linux Server Professional (48 hours during 2 months + intensive version during 10 days) is a professional certification program that covers performing concrete maintenance tasks with the command line, installing & configuring a computer running Linux and configuring basic networking.

LPIC-2: Linux Network Professional (60 hours during 2.5 months) is a professional certification program that covers administering tasks for small to medium–sized mixed Linux networks.

Teacher's role

The role of the teacher is to facilitate learning by intense collaboration and face-to-face discussion of problems, supporting, guiding, and monitoring the learning process, which is close to practical application of maintenance and administering tasks in Linux servers and networks.

Learner's role

Students build competences that are of great importance in the current high-tech world, such as problem-solving and analytical thinking for resolution of complex potential problems in Linux networks. Students learn how to deal with complex practical problems in the context of Linux servers and networks; how to grow their sense of collaboration with IT partners; how to get sense of initiative to turn theoretical ideas into practical actions; how to transfer knowledge to new situations.

Assessment

During courses teachers could provide detailed comments about each student's strengths (progress) and weaknesses (deficiency of some skills or specific knowledge). After courses students can pass exams to get the international certificates (www.lpi.org): LPIC-1 – after two exams, LPIC-2 – after two exams. Once a person is certified by LPI NTUU and receives a certification designation (LPIC-1, LPIC-2) the certification is valid for 5 years. The certificates are very important, because they can establish competence for well-defined Linux-related problem-based functions, show students's value to a potential contractor or employer, set out and follow a career path.

Odessa National Polytechnic University (ONPU)

1. Case Study

Contact Person: Vira Liubchenko, professor of System Software Department, Odessa National Polytechnic University

E-mail: lvv@edu.opu.ua

A link to the course description (if it exists online): N/A

Short description of how the method is applied

Short-term (2 monthes) course on Internet Business is concerned the online business model and strategy. There are 4 content modules in the course: Internet business strategy, Digital branding, Technology platforms, Online marketing. Best practices, tips and technologies are sudyed during the course. Case study brings alive the course and makes it more practical-oriented.

For each of content module one case were prepared. The students get appropriate case at the end of the content module. They should prepare short essay on case question at home as individual preparation. In addition, they should take part in class discussion on case issue.

Resources used

- Text of cases (printed or electronic version);
- URL of supported materials (site, articles, ect);
- List of recommended reading.

Activities and tasks used

- Individual preparation;
- Class discussion.

Teacher's role

- Facilitator of class discussion.

Learner's role

- Decision maker.

Assessment

- Essay (individual preparation);

−   Participation in class discussion;

−   Individual final assessment (description of own online business).

2. Project-Organised Learning

Short description of how the method is applied

1-semester course on Agile Software Development. Agile is more about doing than theoretical understanding, so the project most important. Lectures only add philosophy, overview and counterpoints.

Students are proposed assignment project. Teacher defines problem and domain of software to develop. Student team works in framework of Scrum. Students themselves control all activities during the sprints (daily scrums, commits, sprint backlog changing). Teachers met with students every 2 weeks (at the end of sprint) for demonstration and retrospective ceremonies.

Resources used

−   Repository GitHub (or some similar);
−   Task control system (Trollo or some similar);
−   Skype for daily scrums.

Activities and tasks used for every sprint (iteration)

−   Planning game;
−   Software development;
−   Support of visibility (daily scrums, commitments, daily changes in sprint backlog);
−   Demo and retrospective.

Teacher's role

−   Scrum Master;
−   Product Owner;
−   Tutor and consultant.

Learner's role

–   Software developer in the scrum team

Assessment

–   Oral presentations of the team at the demonstrations;

–   Group poject report;

–   Peer-to-peer evaluation.

Russian-Armenian (Slavonic) University (RAU)

1. Cooperative Learning

Contact Person: Yelena Muradyan

E-mail: elena-rau@hotmail.com; lenamuradyan@gmail.com

A link to the course description (if it exists online): N/A

Short description of how the method is applied

Students are divided into groups of two or four and work on a common task. The research topic or the task is usually predecided by the teacher/instructor in accordance with particular specialization. Main goal of this method is encouraging team work, knowledge and skills sharing and improving students' skills in presentation and analysis.

Resources used

Case studies delivered by teachers during classes: websites for data collection

Activities and tasks used

Experiment assigments, joint problem solving (data collection, surveys, etc.)

Teacher's role

Facilitation the discussion and gives expert analysis

Learner's role

Students share the same scale of tasks in a joint work. There are no organizers, facilitators or other roles assigned to each student by the teacher. Everyone in a group work is equal.

Assessment

Assessment is done using two methods:

1. Students' performarmance during studies and debates;

2. Final report and presentation.

2. Case method

Short description of how the method is applied

The teacher provides compiled information about cases related to the given topic. Students research the cases with the help of provided information and through additional resources provided by the teacher. During the class the teacher facilitates student discussions/debates on the case and gives expert analysis. During some legal courses, students are devided into groups of opponent, simuating a court hearing on the case.

Resources used

Cases and case studies

Activities and tasks used

Joint cases analysis, debates, court hearing simulations

Teacher's role

Facilitation the discussion and gives expert analysis

Learner's role

Students study the case and debate on the topic. They have the key role in the study process providing their own analysis of the case.

Assessment

Assessment is done based on the fact knowledge and the analysis provided by students revealed during the debates.

Taras Shevchenko National University of Kyiv (TSNUK)

1. Problem-Based Learning (PBL)

Contact Person: Bohdan Sus

E-mail: bnsuse@gmal.com

Lysochenko Sergiy

E-mail: lys@univ.kiev.ua

A link to the course description (if it exists online): N/A

Short description of how the method is applied

Promising LLL course in the Institute of Continuing Education (TSNUK), is the course "The Art of presentation." The course is a commercial one, but training footage is freely available. The course can be used among many target groups due to its versatility. Currently, it is adapting for electronic educational use in LLL. In our opinion, this course can be interesting for students of the LLL designer courses. The purpose of the course is to teach students of the best ways delivering of various information to the consumers, using the methods which are typical for distance learning. Today, the independent learning, which is almost synonymous with e-learning, takes the bulk of study time. Therefore, "The Art of presentation" course will be very useful almost for all forms of LLL training. Particularly necessary this course might be for students with special needs, or those who live in remote regions. Mastering the art of presentations enable them not only use this knowledge for creating LLL courses, but also for electronic communications, better delivering their opinions to employers, colleges and friends. Ultimately it improves their social adaptation, self-estimation, employment. From our point of view in this course advisable widest use the methods of Flexible learning and E-learning.

Resources used

http://www.unicyb.kiev.ua/Library/Present/ in Ukrainian

Activities and tasks used

Consistent delivering of training modules, self-testing, testing and discussions after passing the module, setting practical tasks for each student based on his ultimate objectives

Teacher's role

Tutor, students mentor, colleague, friendly advisor

Learner's role

Active learning, discussions in groups, active searching of educational materials, partially self-education

Assessment

self-testing, testing, on-line testing, exams if need of diploma, questioning of students

#2 "The Art of computer presentation."

With the rapid development of information technology and space, each of us becomes a device with a potentially huge audience, but the best use of existing opportunities to advance their professional reputation, its products or organizations is possible only if the understanding of the basic principles of computer presentation, public relations, media relations, content creation for social networks and so on. The aim of the course is to acquaint wide audience with features use of communication tools for building:
their reputation (starting from the right resume posting information about your professional experience in social media and promote your profile); promotion of services, products or important social messages (identifying target groups and their needs, creativity, tools for media relations and information activities);   successful development and reputation of the company (creation of communication plans and strategies, assessment of success).

The course focuses on practical skills development and implementation of communication campaigns using different multimedia tools.

Summary of topics of the course
 For a professional resume and promote yourself as a brand.
   Modern presentation using different platforms.

Problem-Based Learning (PBL)

Short description of how the method is applied

Students-beginners in computer sciences and wide range of people, especially who are planning to work in advertisement gain knowledge and skills through problem-solving. It is an introductive course of implementation it-technologies to successful presentations. Students often work in groups to investigate and seek solutions to problem or challenge.

The goals are: to help individuals develop effective presentations, as well as collaboration skills; to support self-directed learning; to increase intrinsic motivation.

Course is fully complies with LLL demands and supports building skills and abilities that are so valuable for today's world of constant change. Students are presented with open-ended question. Students need to learn the content that is necessary to solve the challenge and make a successful computer presentation. Working in groups during discussions students are trying to identify what they already know and what they need to learn to solve the assigned problem, identify how and

where to access new information; each student studies the content individually and report what they have learnt and lead to the resolution of the problem. Problem Based learning in course of "The Art of presentation." helps students build competences that are vital in today's world, such as problem -solving, research, critical thinking, social, creativity and innovation.

Resources used

http://www.unicyb.kiev.ua/Library/Present/

Activities and tasks used

Discussions, creative assignments; problem solving; project work; study teams, Active learning in groups.

Online communication tools: blogs, websites, online media and social networks.
Social networks and specific use. Tools for successful cooperation with the media. The course is accompanied by additional materials: presentation of lectures, the lecturer electronic comments, additional information on the topics of the course

Teacher's role

Tutor, student assistant to facilitate learning by supporting, guiding, and monitoring the learning process.

Learner's role

Students learning how to organise their own computer presentation; Learn to deal with complex design problems; social skills; sense of collaboration; sense of initiative: the ability to turn ideas into presentation actions; Learn to transfer knowledge to new situations.

Assessment

online testing, questioning of students, diploma papers

#2 Free MOOC course of History of Ukraine by TSNUK.

Short description of how the method is applied

Course is fully complies with LLL demands and supports building skills and abilities that are so valuable for today's world of constant change. Students are presented with open-ended question. Students need to learn the content that is necessary to solve the challenge. Students are trying to identify what they already know and what they need to learn to solve the assigned problem in online phorum discussions.

Resources used

http://prometheus.org.ua/courses/

http://edx.prometheus.org.ua/courses/KNU/101/2014_T2/about

Activities and tasks used

Problem-Based Learning (PBL)

The course is completely free. Video lectures, assignments and forum available at any time during the course. Independent archive research work.

Teacher's role - Instructor

The teacher may recommend textbooks for students to further explore a particular topic, but available in the course materials will be sufficient for successful completion. All the students are need is only access to the Internet at speeds sufficient for watching video lectures.

Learner's role

Students learning Actual problems of the history of Ukraine during the Second World War

Assessment

online testing, questioning of students. Video lectures, assignments and forum available at any time during the course. Successfully make all the objectives of the course and receive a certificate of completion signed by the teacher!

#3, "Modern computer microscopy", and #4 Physical methods of chemical compounds exploration

LLL in Ukraine is becoming more accessible to an increasing number of students and is acquiring an independent value at obtaining degree in various fields of knowledge. Submission of laboratory activities by the students is the problem to be solved. Remote labs, integrated into the learning management system (LMS) of an educational institution that provide real time access to a real lab environment could help solve the problem. This method allows learners to operate equipment remotely to work with the labware at home or from another university and provide research in real-time mode. Tutoring in student groups with the use of remote labs allows to reach an identical level of knowledge compared to students who executed lab activities students in a conventional way. Students obtain real time access to the laboratory. The use of an open source code allows the creation of a shared database for processing data obtained at virtual and remote labs. The computer demonstrations as important didactic means at study of physics in systems of electronic education can be introduced by the simulation of physical process by the means of animation and video of real experiment. The special efficiency marks association of computer simulation with video. The development of electronic tutorial in physics has its specific features, because the description of physical phenomena requires formalization, application of mathematical terminology, and

development of dimensional imagination, modeling, and understanding of dynamics of physical processes. Electronic tutorial gives the ability to full accomplish these tasks. Other features of electronic tutorial are the following: complicated geometrical imaging of physical processes; mathematical proving, demonstration of physical processes. In physic's tutorials graphic images are frequently used. They are logically composed, supplemented and, as a result, look quite complicated and hard to understand in traditional imagination. The computer gives an opportunity to simplify and to make this process visual due to the gradual complication of the exposure especially when the previous images are being saved and the following ones are increasingly complicated. In the course of physics there are some chapters that require a developed imagination, thinking, and capacity to analyse and to compare. Therefore, a major help here can be animation. While every image in the tutorial explains proper physical effect, there is an opportunity of watching it in an animated variant. Demonstration has a major value for comprehension of physical processes. However in the absence of a possibility of carrying out real demonstrations, the computer provides conditions of their replacement by modeling physical processes, dynamically showed which also assist visualization and understanding of a material. The course focuses on practical skills development and implementation of lab activities with unique equipment.

Summary of topics of the course

For a professional natural science student's preparation

Short description of how the method is applied

Problem-Based Learning (PBL)

Problem Based learning in course helps students build competences that are vital in today's world, such as problem -solving, research, critical thinking, creativity and innovation. Laboratory practice is an integrate part of the educational process in higher education in the study of natural sciences. During laboratory work student receives knowledge and gains skills of his competence as a specialist. Student has the opportunity to communicate with the teacher by the means of communication. Therefore, one of the main requirements for virtual simulator is using of interactive modes of experiment. Virtual simulator, which uses the ideal models of interactive change of experimental conditions gives to student an opportunity to compare measurements with modern virtual experiments conducted on expensive scientific research equipment and help to learn and understand complex ideas and phenomena. During experiment students learn equipment and techniques of measurement, evaluate the errors, examine statistical appropriateness of results: the influence of data selection on the value of uncertainty, the ratio of random error of measured and instrumental errors, the presence of noise. The configuration of virtual labs can be modified quickly to create new variants of depending on the required academic level.

Resources used - examples are in the free online-access

http://iht.univ.kiev.ua/virtual-lab/chem/phys-met-chem-comp/story_html5.html

http://iht.univ.kiev.ua/virtual-lab/microzond/story_html5.html

http://195.68.210.50/moodle/course/view.php?id=61

Activities and tasks used

creative assignments; problem solving; project work; Active learning in groups.

Online communication tools: LMS.

The course is accompanied by additional materials: presentation of lectures, the lecturer electronic comments, additional information on the topics of the course

Teacher's role

Tutor, student assistant to facilitate learning by supporting, guiding, and monitoring the learning process.

Learner's role

Learn to deal with complex lab equipment, scientific calculations, modelling; Learn to transfer knowledge to new situations.

Assessment

online testing, questioning of students, diploma papers

University of Georgia (UG)

1. Problem-based learning (PBL)

Contact Person: Johnny Mtsariashvili

E-mail: j.mtsariashvili@ug.edu.ge

A link to the course description (if it exists online): N/A

Short description of how the method is applied

Most educators would argue that the main goal of education is to develop students who are effective problem solvers. PBL involves giving students a well-structured problem to work through (usually as a team guided by a tutor). Being more student centered rather than teacher (or institution centered), learning is more effective.

Problem-based learning (PBL) is an approach that challenges students to learn through engagement in a real problem. It is a format that simultaneously develops both problem solving strategies and disciplinary knowledge bases and skills by placing students in the active role of problem-solvers confronted with an ill-structured situation that simulates the kind of problems they are likely to face in future.

Problem-based learning is student-centered. PBL makes a fundamental shift--from a focus on teaching to a focus on learning. The process is aimed at using the power of authentic problem solving to engage students and enhance their learning and motivation. There are several unique aspects that define the PBL approach:

- Learning takes place within the contexts of authentic tasks, issues, and problems-that are aligned with real-world concerns;

- In a PBL course, students and the instructor become co-learners, co-planners, co-producers, and co-evaluators as they design, implement, and continually refine their curricula;

- The PBL approach is grounded in solid academic research on learning and on the best practices that promote it. This approach stimulates students to take responsibility for their own learning, since there are few lectures, no structured sequence of assigned readings, and so on.

PBL is unique in that it fosters collaboration among students, stresses the development of problem solving skills within the context of professional practice, promotes effective reasoning and self-directed learning, and is aimed at increasing motivation for life-long learning.

Problem-based learning begins with the introduction of an ill-structured problem on which all learning is centered. The problem is one that students are likely to face as future professionals. Expertise is developed by engaging in progressive problem solving. Thus, problems drive the organization and dynamics of the course. Students, individually and collectively, assume major responsibility for their own learning and instruction. Most of the learning occurs in small groups rather than in lectures.

Resources used

- http://online.sfsu.edu/rpurser/revised/pages/problem.htm

- https://www.samford.edu/ctls/archives.aspx?id=2147484114

Activities and tasks used

A PBL courses are designed into a series of real-world, hands-on, PBL investigations. Students work in small groups/teams with other students on problems that they are likely to encounter as a professional manager. Students begin a PBL investigation by being presented with an ill-structured organizational problem or scenario. Such a presentation may be in the form of a written statement, a video clip of a real manager at a company, or a guest speaker. Every PBL team will appoint a chairperson/leader and sometimes a recorder/secretary. Every PBL team will be guided in the use of a reiterative problem-solving process. The team will apply this problem solving process to find,

analyze, and solve the presenting problem. Some PBL investigations may culminate in a student-created project/product, exhibitions, or other artifacts that address the driving questions. In some cases, the PBL investigation will culminate in an oral performance with managers from the business community in attendance.

As students work with each problem they can:

1. Develop your diagnostic reasoning and analytical problem-solving skills.

2. Determine what knowledge you need to acquire to understand the problem, and others like it.

3. Discover the best resources for acquiring that information.

4. Carry out your own personalized study using a wide range of resources.

5. Apply the information you have learned back to the problem.

6. Integrate this newly acquired knowledge with your existing understanding.

The problem-solving process can be summarized according to three broad and reiterative phases.

Phase 1. First, the group is gathering information and list it under a heading entitled: "What do we already know?" In this phase, they will entertain the problem in light of the knowledge that you already have from your own experience. Your group will discuss the current situation surrounding the problem as it has been presented. This analysis requires discussion and agreement on the working definitions of the problems, and sorting out which issues and aspects of the situation are worthy of further investigation. This initial analysis should yield a problem statement that serves as a starting point for the investigation, and it may be revised as assumptions are questioned and new information comes to light.

Phase 2. Next, students are engaged with the problem by also identifying under a second heading, "What do we need to know (to solve this problem)?" Here they will list questions or learning issues that must be answered to address missing knowledge, or to shed light on the problem. It is in this phase that the group will be analyzing the problem into components, discussing implications, entertaining possible explanations or solutions, and developing working hypotheses. This activity is like a "brainstorming" phase with evaluation suspended while explanations or solutions are written on a flipchart or chalkboard. The group will need to formulate learning goals, outlining what further information is needed, and how this information can best be obtained.

Phase 3. The above list should inform the group in what to do in order to solve the problem. In this phase the group will discuss, evaluate, and organize hypotheses and tentative hypotheses. The group will make a "What should we do?" list that formulates keeps track of such issues as what resources to consult, people to interview, articles to read, and what specific actions team members need to perform. It is in this phase that your group will identify and allocate learning tasks, develop study plans to discover needed information. You will be gathering information from the classroom, resource readings, texts, library sources, videos, and from external experts on the subject. As new information is acquired, the group will need to meet to analyze and evaluate it for its reliability and usefulness in applying it to the problem.

In short, students are spending a great deal of time discussing the problem, generating hypotheses, identifying relevant facts, searching for information, and defining their own learning issues. Unlike traditional and standard classes, learning objectives are not stated up front. Rather, student and members of his/her group are responsible for generating their own learning issues or objectives based on their group's analysis of the problem.

A PBL courses are designed into a series of real-world, hands-on, PBL investigations. Students work in small groups/teams with other students on problems that they are likely to encounter as a professional manager. Students begin a PBL investigation by being presented with an ill-structured organizational problem or scenario. Such a presentation may be in the form of a written statement, a video clip of a real manager at a company, or a guest speaker. Every PBL team will appoint a chairperson/leader and sometimes a recorder/secretary. Every PBL team will be guided in the use of a reiterative problem-solving process. The team will apply this problem solving process to find, analyze, and solve the presenting problem. Some PBL investigations may culminate in a student-created project/product, exhibitions, or other artifacts that address the driving questions. In some cases, the PBL investigation will culminate in an oral performance with managers from the business community in attendance.

As students work with each problem they can:

1. Develop your diagnostic reasoning and analytical problem-solving skills.

2. Determine what knowledge you need to acquire to understand the problem, and others like it.

3. Discover the best resources for acquiring that information.

4. Carry out your own personalized study using a wide range of resources.

5. Apply the information you have learned back to the problem.

6. Integrate this newly acquired knowledge with your existing understanding.

The problem-solving process can be summarized according to three broad and reiterative phases.

Phase 1. First, the group is gathering information and list it under a heading entitled: "What do we already know?" In this phase, they will entertain the problem in light of the knowledge that you already have from your own experience. Your group will discuss the current situation surrounding the problem as it has been presented. This analysis requires discussion and agreement on the working definitions of the problems, and sorting out which issues and aspects of the situation are worthy of further investigation. This initial analysis should yield a problem statement that serves as a starting point for the investigation, and it may be revised as assumptions are questioned and new information comes to light.

Phase 2. Next, students are engaged with the problem by also identifying under a second heading, "What do we need to know (to solve this problem)?" Here they will list questions or learning issues that must be answered to address missing knowledge, or to shed light on the problem. It is in this phase that the group will be analyzing the problem into components, discussing implications, entertaining possible explanations or solutions, and developing working hypotheses. This activity is

like a "brainstorming" phase with evaluation suspended while explanations or solutions are written on a flipchart or chalkboard. The group will need to formulate learning goals, outlining what further information is needed, and how this information can best be obtained.

Phase 3. The above list should inform the group in what to do in order to solve the problem. In this phase the group will discuss, evaluate, and organize hypotheses and tentative hypotheses. The group will make a "What should we do?" list that formulates keeps track of such issues as what resources to consult, people to interview, articles to read, and what specific actions team members need to perform. It is in this phase that your group will identify and allocate learning tasks, develop study plans to discover needed information. You will be gathering information from the classroom, resource readings, texts, library sources, videos, and from external experts on the subject. As new information is acquired, the group will need to meet to analyze and evaluate it for its reliability and usefulness in applying it to the problem.

In short, students are spending a great deal of time discussing the problem, generating hypotheses, identifying relevant facts, searching for information, and defining their own learning issues. Unlike traditional and standard classes, learning objectives are not stated up front. Rather, student and members of his/her group are responsible for generating their own learning issues or objectives based on their group's analysis of the problem.

Teacher's role

The teacher role changes from "sage on stage" to a "guide by the side." His/her role is more like that of a facilitator and coach of student learning, acting at times as a resource person, rather than as knowledge-holder and disseminator.

The facilitator role allows the faculty member or student mentor to act as a/an:

- Content and procedural resource person;
- Facilitator of group processes;
- Guide to additional resources;
- Sounding-board person;
- Learner, as well.

Instead of being the "sage on the stage," the faculty member is now to be the "guide on the side." Instead of lectures, the faculty member now models various methods of problem-solving, sometimes referred to as "cognitive apprenticeship" learning (Brown, Collins & Newman, 1989). Meta-cognitive questions such as "How do you know that?" "What assumptions might you be making?" and "What else might you need to know?" are used by faculty versus dictating how to solve a problem.

Learner's role

The student role is altered with PBL. PBL contrasts considerably with the traditional teaching most students have encountered. Students, particularly freshmen, have difficulty with the concept and

use of self-directed learning (Schmidt, Henny & de Vries, 1992). Be aware that students may react to the idea of PBL with shock, denial, anger, resistance, acceptance and finally, confidence.

Students also must take responsibility for their own learning. PBL encourages students to identify their learning needs and determine the resources they will need to use to accomplish their learning. With the independent learning comes considerable collaboration with other students and faculty. Collaborative work among students facilitates their comprehension of the problem and the application to future situations. Collaboration is an essential skill for students to gain as they will most likely be working as members of teams in their respective workplaces.

Two often difficult tasks that students encounter in PBL is the process of reflection and peer assessment. Reflection, or self-assessment, allows the student to complete the learning cycle. What did I learn? What more do I need to know? How can I approach this problem in the future? And so forth are key questions we want students to ask of themselves. Students must become proficient in not only assessing their own progression in learning, but that of their peers as well. The ability to monitor one's own learning as well as providing credible feedback to one's colleagues is an important personal and professional skill.

Orienting students to PBL is a must. One approach would be to introduce the concept and rationale for use of PBL in a course (or curriculum). Another would be to have the students work on a sample problem which is followed by a debriefing session.

Assessment

With PBL, assessment is not separate from instruction. Rather, assessment is integral to learning. The focus and purpose of assessment is *on learning*, on how it is done, and how it can be better, not on normative comparisons. Assessment is a continuous process that drives instruction. Further, assessment does not bring an end to learning; it provides information about how to continue to develop your skills, knowledge and abilities with respect to the course learning objectives. Having said this, it is important for you to think of assessment as an *active demonstration of your understanding and ability to apply this understanding*.

Words like "tests" and "examinations" have well established connotations of evaluating a student's *possession* of knowledge. We need a different process, and a new language, to identify how to assess a student's capability for *using* and *applying* knowledge. Education of an individual, understood in terms of developing a capability for using and applying one's knowledge, cannot be adequately assessed by traditional testing. Grading on a curve, which sorts students into groups for administrative purposes, says nothing about how each student is using his or her talents or growing toward their potential.

With PBL, the instructor is no longer the sole yardstick by which students' progress is measured. Instructor's role is to help students monitor themselves, to monitor your own progress, to establish criteria for learning and quality work, and to help them devise their own goals for improvement. This means that instructor is not be the only judge of student work; students learn to evaluate the work of their peers, as well as their own.

Students are co-developers with the instructor relevant and meaningful assessments, and play an active role in developing criteria and setting standards of performance for high quality work. Assessments must have meaning for the learner. For assessments to be meaningful, they must have some connection to the real world, difficult enough to be interesting but not totally frustrating, and generative, where a real product, service, or valued information is being evaluated. This concept of assessment-as-learning focuses on what *learners achieve*--not what *teachers provide.*

Therefore, student assessment is a multidimensional process, integral to learning, that involves observing performances of individual learners in action and judging them on the basis of collaboratively determined developmental criteria, with resulting feedback to that learner. Assessments may involve a performance or demonstration, usually for a real audience (i.e., managers from the business community) and useful purpose (e.g., as part of student exhibition or learning conference). Assessment must be seamless and ongoing; it must be part of the PBL process. Students must also learn during assessment; it is not simply a "grade" that is tacked on at the end of a paper or transcript.

In general, and at minimum, students can be assessed in three broad areas:

1. *Applied Competence.* Demonstrate the ability to use organizational design and change management concepts and frameworks to identify and analyze variables that can influence an organization's overall effectiveness.

2. *Critical Thinking, Problem-Solving and Communicative Competence.* Identify problems and/or opportunities in organizational contexts and make specific recommendations, supported by theory, to improve the situation. Accurately and competently using theoretical frameworks from organization design and change literature to interpret and solve business problems, and effectively communicating his/her analyses to others in a variety of professional contexts. Implementing his/her problem solving activities with a commitment to quality.

3. *Collaborative and Leadership Competence.* Collaborates as a member of a project team, taking the initiative in identifying and solving problems or pursuing opportunities for learning and improvement within the group.

Vanadzor State University (VSU)

Cooperative Learning

Contact Person: Sofya Babayan

E-mail: sofyababayan@yandex.ru

A link to the course description (if it exists online): N/A

Short description of how the method is applied

Cooperative learning is a teaching method where students of mixed levels of ability are arranged into groups, and rewarded according to the group's success, not the success of an individual member. Cooperative learning is sometimes thought of simply as 'group work,' but groups of students working together might not be working collaboratively. When beginning to use cooperative learning with students, it is also important to establish team norms. Team norms are guidelines or rules governing how group members agree to work together. Norms for working in groups tend to be very different from traditional classroom norms. For example, in a traditional classroom, students complete their own work. In cooperative classrooms, students work with others to complete tasks. Have students discuss and develop the norms that they will follow during group work. Team norms, if designed well, can help to create a safe and supportive atmosphere. When implemented well, cooperative learning encourages achievement, student discussion, active learning, student confidence, and motivation. The skills students develop while collaborating with others are different from the skills students develop while working independently. As more businesses organize employees into teams and task forces, the skills necessary to be a "team player" (e.g., verbalizing and justifying ideas, handling conflicts, collaborating, building consensus, and disagreeing politely) are becoming more valuable and useful. Using cooperative groups to accomplish academic tasks not only provides opportunities for students to develop interpersonal skills but also gives them authentic experiences that will help them be successful in their future careers.

Collaborative learning comprises several elements:

Face-to-Face Interaction

Students are promoting each others' learning through face-to-face activities where they discuss and explain assignment topics with each other.

Positive Interdependence

Students have the sense that they're 'in this together,' feeling that each member's individual effort will not only help him, but the whole group. The grade of each student is dependent upon the effort of other group members.

Individual Accountability

Each student is accountable for their own contribution to the group. Clearly described goals ensure that each student knows what she is responsible for and what the group is responsible for.

Group Processing

Students are given a means for analyzing their group for how well the group has learned, and whether or not collaborative skills are being used.

Resources used

http://study.com/academy/lesson/what-is-cooperative-learning-definition-lesson-methods.html

http://www.co-operation.org/home/introduction-to-cooperative-learning/

https://sites.google.com/site/bilingeduc/pages-and-groups/estrategias-de-ensenanza-aprendizaje/class-activities-that-use-cooperative-learning

http://serc.carleton.edu/introgeo/cooperative/roles.html

Activities and tasks used

Collaborative learning activities can include: laboratory or experiment assignments; group projects; joint problem solving; debates; study teams; collaborative writing; and other activities.

1. **Jigsaw:** Groups of five students are set up. Each group member is assigned some uniques material to learn and then teach to his group members. To help in the learning students across the class working on the same sub-section get together to decide what is important and how to teach it. After practice expert groups reform and srudents teach each other.

2. **Think-Pair-Share:** It involves a three step cooperative structure. During the first step individuals think silently about a question posed by the instructor. Individuals pair up during the second step and exchange thoughts. In the third step, the pairs share their responses with other pairs, other teams, or the entire group.

3. **Team-Pair-Solo:** Students do problems first as a team, then with a partner, and finally on their own. It is designed to motivate students to tackle and succeed at problems which initially are beyond their ability. It is based on a simple notion of mediated learning. Students can do more things with help than they can do alone. By allowing them to work on problems they could not do alone, first as a team and then with a partner, they progress to a point they can do alone that which at first they could do only with help.

Teacher's role

In a cooperative classroom, the teacher's role changes from giving information to facilitating students' learning. In formal cooperative learning groups teachers are responsible for:

1. Making preinstructional decisions: decide on the objectives, tasks, group size, student roles, materials, etc.;

2. Explaining the task and the positive interdependence;

3. Monitoring students' learning and intervening to provide assistance in completing the task or increase student's interpersonal and group skills;

4. Assessing students' learning and helping students process how well their groups functioned.

Learner's role

Assigning roles to students is one way to encourage positive interdependence, interaction, and group processing. Usually roles are responsibilities on top of the project itself. The teacher has to choose

roles that will help students overcome communication difficulties to get the project done and done well. Common problems for students facing group projects include:

- Who starts the discussion? Who is supposed to keep it going?

- How do we meet everyone's standards for good work?

- Who is in charge of keeping track of what everyone has done and of the stuff we're supposed to do?

Sometimes, it is a good idea to pick formal roles and to give them to the students; at others, it is best to give students a list of suggested roles and let them sort out their group's internal dynamics themselves. One thing which should be done is to make sure that the roles rotate among the group members. The teacher might want to randomly assign the roles to group members or randomly determine an order for students to pick their role for the activity. This kind of randomization will help avoid rigid group structures and expectation effects. It also allows different individuals to develop and utilize different competencies. Random procedures also combat potential prejudices associated with roles - for example, teachers want to avoid allowing males to serve as leaders, while females serve as the "secretaries." Finally, random procedures also create a non-threatening means for students to share personal information and to develop closer relationships.

Appropriate roles will depend on group size and the nature of the cooperative learning task. The lists of roles described below are intended to be representative but not exhaustive.

Potential Project Roles

- **Leader/Editor**: This student is in charge of organizing the final product of the project, be it a paper, a presentation, etc. That doesn't mean technical details, but of making sure that the project meets the standards set out by the instructor (often as a rubric), plus any extras stipulated by the group. These standards generally include punctuality and completeness.

- **Recorder/Secretary**: This person takes notes whenever the group meets and keeps track of group data/sources/etc. This person distributes these notes to the rest of the group highlighting sections relevant for their parts of the project.

- **Checker**: Someone needs to double-check data, bibliographic sources, or graphics for accuracy and correctness.

- **Spokesperson/Press Secretary/Webmaster**: This person would be responsible for the technical details of the final product and would be ready to summarize the group's progress and findings to the instructor and to other groups.

Possible Discussion Roles

- **Facilitator/Encourager**: This student gets discussion moving and keeps it moving, often by asking the other group members questions, sometimes about what they've just been saying.

- **Timekeeper**: Someone needs to make sure that the group stays on track and gets through a reasonable amount of material in the given time period.

- **Summarizer**: Every so often (perhaps once per question for a list of questions, or at the end for one question), this student provides a summary of the discussion for other students to approve or amend.

- **Reflector**: This student will listen to what others say and explain it back in his or her own words, asking the original speaker if the interpretation is correct.

- **Elaborator**: This person seeks connections between the current discussion and past topics or overall course themes.

Assessment

Assessment activities can be categorized as either formative or summative, both of which are appropriate for cooperative learning exercises as they provide opportunities to enhance key components of cooperative learning exercises such as positive interdependence and individual accountability.

- **Formative assessment** activities are used to provide feedback, evaluating learning progress in order to motivate students to higher levels.

- **Summative assessment** activities are used to judge final products for completion, competency and/or demonstrated improvement.

Nearly any evaluation can be developed to fulfill either formative or summative assessment goal. For example, written reports can include a revise and resubmission process which provides students with feedback on which aspect of their work is in need of improvement prior to evaluation of the final product.

Assessment activities can be implemented at different stages of the cooperative learning exercise and can be conducted by either the instructor, the student, or group peers.

Pre-Exercise Assessment

Developing assessment strategies that are implemented before the exercise is to take place are most appropriate when cooperative learning exercises are more complex, time intensive, and make use of more sophisticated content. The success of such exercises hinges, in part, on the preparation of students and pre-exercise activities can provide a signal as to the importance and

complexity of this work to students.

- "Tickets to participate" are a form of assessment that requires individual students to complete a task prior to the start of the cooperative learning exercise. The purpose of these assignments is to prepare students, focusing their attention on content relevant to the exercise and reducing the likelihood of unprepared students. Those who fail to complete the assignment are placed in a group together and required to complete the exercise. In all likelihood, such unprepared students will create output that is of lower quality than their otherwise prepared peers resulting in a valuable lesson learned.

Assessment during the Exercise

Assessment can occur at either the individual or group level during the cooperative learning exercise, facilitated through careful monitoring and intervention or by a formal break in the exercise with all groups checking in on their progress.

Assigning roles to group members, such as summarizer, reflector, elaborator, and/or recorder/secretary provides a more formal mechanism for evaluating the progress of the group.

It is also possible to make individual accountability part of your group-work monitoring by periodically requesting random student reports or oral exams (graded at the instructor's discretion).

- When setting up groups, have the students within each group count off. So in each group, one student has the number "1," another the number "2," and so on.
- At an appropriate point in the exercise, walk up to a group and pick a number at random and that person must report on the group's progress or answer a question about what the group is doing.

Post-Exercise Assessment

In order to make sure that all students are working towards the same standards, it is helpful to provide a detailed description (possibly a rubric or checklist) of how the project will be graded.

- **Individual accountability:** In many or most cooperative learning classes, students still take individual tests or quizzes (in part to make sure that everyone is doing the reading). Group projects can also result individual products. With the peer review method, for example, the paper is the responsibility of the author, and sometimes the reviewers comments on their own are also subject to grading.

- **Group accountability:** Gradable group products include presentations, posters, and papers.

Adult Education Association of Georgia (AEAG)

Self-Directed Learning

Contact Person: Thea Gulua

E-mail: tgulua@gmail.com

Anastasia Kitiashvili

E-mail: kitiashvili@yahoo.com

A link to the course description (if it exists online): N/A

Short description of how the method is applied

Self - directed learning is a way of creating a situation where learners take responsibility for decisions about their learning and work with others to achieve it.

Learners are in charge of all aspects of learning started from deciding topics that should be learned to the methods and resources used to the assessment of achievements.

Self-directed learning integrates self-management (including the social setting, resources, and actions) and self-monitoring in the learning process (the process whereby the learners monitor, evaluate and regulate their learning strategies) (Bolhuis, 1996).

Self-directed learning allows learners to be more effective learners. It is a collaborative approach. Learners collaborate with teachers and peers in the process of learning.

Best Practice Example:

Learning Development of Social Psychological Intervention through SDL - Designing SPI in the area of Reduction of Littering.

Learners/students identified the learning goals and decided what to learn as well as how to approach the learning tasks.

A group of 5 learners/students worked on the project-intervention.

Resources used

Self-directed learning takes place in the student's home, or facilities of the educational institutions such as library or computer labs.Self-directed activities include: library or online research,student initiated group work, projects and etc.

Students need help in improving the following skills for SDL: effective reading,academic writing, researching, (using the library or finding appropriate resources), time management and organizational skills. So providing relevant resources are important.

Best Practice Example:

Learners/students used the following resources: on-line resources and library. Students were supported to find the right resources and to personalize their learning progression.

Teacher's role

Teacher can be information sources, advisors, useful resources, but they do not solve the problems for students; they don't know the answer!

Teacher role's is to raise awareness of students of their roles in learning by means of using various Self-Directed Learning exercises or discussions. Teachers alsoinvolve students in decisions concerning what is to be learned, when and how it should be learned, and how it should be assessed.

Teachers need to encourage learners to reflect on what they learnt and to revise attempted work.

Best Practice Example:

Teacher's role was to encourage students in deciding how to select the best way of designing the intervention and how to monitor and assess their achievements. Teacher's role was to teach skills more than content.

Learner's role

Self- directed learners need to be motivated, independent, self-disciplined, self-confident and goal oriented during the process of learning.

Learners have an active role in the learning process, such as they need to seek direction; to frame the problem; solve the problems, create the product; evaluate employing meta- cognition to understand not only what was learned but how it was learned or how this fits into future learning needs; they need to try to self-analysis and develop interpretations.

Best Practice Example:

Learners/students decided how to frame the problem, analyse the problem, and design a problem definition/explanation and to select the most relevant intervention approach. Before starting SDL they designed a learning goals and a plan.

Assessment

Learners are responsible not only on selection and management but also assessment of their own learning activities; though teacher's role can be expressed in providing feedback to the learners.

To be successful, learners need to learn to give themselves feedback and to understand their own cognition.

Best Practice Example:

Learners/students assessed their learning/achievements based on the final intervention model. They identified the areas they should improve in the future.

5. **Appendix 1**

Contact Person: Thea Gulua
E-mail:

A link to the course description (if it exists online):
Short description of how the method is applied
Resources used
Activities and tasks used
Teacher's role
Learner's role
Assessment

Appendices

Work package 3.4

SOME KEY DEMANDS OF TEACHING METHODS FOR SUPPORT TECHNOLOGIES.

Inquiry-based learning

1. Ability to research information on the topic;
2. Ability to enable communication between an instructor and students, among students;
3. Ability to enable sharing and reviewing information/resources;
4. Ability to enable giving feedback on performance (teacher and peer assessment).

Case Method

1. Ability to manage instructional content (I mean : posting course materials online (e.g. cases);
2. Enables web conferencing (for group and class meetings/discussions and for connecting with outside expert of the field);

Cooperative learning

1. Provides space for peer and group discussions, debates;
2. Provides space for peer and group negotiation and planning;
3. Enables collaborative writing;

Problem-based learning

1. Ability to manage instructional content;
2. Ability to manage a group work (for instructors);
3. Systems for researching and investigating the assigned topic/problem;
4. Space for group negotiation, planning and discussions;
5. Enables publishing solutions to the problem;
6. Ability to provide assessment, review and feedback (peers, teacher).

Project-organized learning

1. Ability to plan and manage a project;
2. Ability to enable sharing and reviewing information/resources;
3. Provides space for group discussions, debates;
4. Enables communication between an instructor and students, among students;
5. Enables collaborative writing;
6. Enables publishing.

Flexible learnig and E-learning

1. Learning management systems;
2. Ability to manage instructional content;
3. Ability to create digital content;
4. Ability to cater non-traditional students;
5. Accessible to people with disabilities.

Socratic dialogue

1. Ability to enable communication between an instructor and students, among students;
2. Ability to enable sharing and reviewing information/resources;
3. Ability to enable giving feedback on performance (teacher and peer assessment).

Field-based learning

1. Ability to enable conducting research on the topic/resource;
2. Ability to enable collaboration among students and instructor.

Self-directed learning

1. Ability to secure information on the topic;
2. Ability to secure learning resources;
3. Ability to form the communication between an instructor and students, among students;
4. Enables collaborating writing.

The spiral method

1. Ability sharing and reviewing information/resources;
2. Ability to form communication between students and instructor, among students;

Case study

1. Enables acquiring information about the topic/resource;
2. Ability to form the communication between the students and instructor, among students

SOME KEY DEMANDS OF TEACHING METHODS FOR SUPPORT TECHNOLOGIES.

Inquiry-based learning

5. Ability to research information on the topic;
6. Ability to enable communication between an instructor and students, among students;
7. Ability to enable sharing and reviewing information/resources;
8. Ability to enable giving feedback on performance (teacher and peer assessment).

Case Method

3. Ability to manage instructional content (I mean : posting course materials online (e.g. cases);
4. Enables web conferencing (for group and class meetings/discussions and for connecting with outside expert of the field);

Cooperative learning

4. Provides space for peer and group discussions, debates;
5. Provides space for peer and group negotiation and planning;
6. Enables collaborative writing;

Problem-based learning

7. Ability to manage instructional content;
8. Ability to manage a group work (for instructors);
9. Systems for researching and investigating the assigned topic/problem;
10. Space for group negotiation, planning and discussions;
11. Enables publishing solutions to the problem;
12. Ability to provide assessment, review and feedback (peers, teacher).

Project-organized learning

7. Ability to plan and manage a project;
8. Ability to enable sharing and reviewing information/resources;
9. Provides space for group discussions, debates;

10. Enables communication between an instructor and students, among students;

11. Enables collaborative writing;

12. Enables publishing.

Flexible learnig and E-learning

6. Learning management systems;

7. Ability to manage instructional content;

8. Ability to create digital content;

9. Ability to cater non-traditional students;

10. Accessible to people with disabilities.

Socratic dialogue

4. Ability to enable communication between an instructor and students, among students;

5. Ability to enable sharing and reviewing information/resources;

6. Ability to enable giving feedback on performance (teacher and peer assessment).

Field-based learning

3. Ability to enable conducting research on the topic/resource;

4. Ability to enable collaboration among students and instructor.

Self-directed learning

5. Ability to secure information on the topic;

6. Ability to secure learning resources;

7. Ability to form the communication between an instructor and students, among students;

8. Enables collaborating writing.

The spiral method

3. Ability sharing and reviewing information/resources;

4. Ability to form communication between students and instructor, among students;

Case study

3. Enables acquiring information about the topic/resource;

4. Ability to form the communication between the students and instructor, among students