



Erasmus+

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PERFECT PROJECT

**DEVELOPMENT OF AN INNOVATIVE TEACHING METHOD
IN A VOCATIONAL SCHOOL,
CREATED WITH THE SUPPORT OF INNOVATIVE
MULTIMEDIA TECHNOLOGIES AND ICT,
AND FOCUSING ON TEACHING WITH THE USE OF MOBILE
TECHNOLOGY (D-LEARNING AND M-LEARNING)**

Materials elaborated within the framework realized from 1 September 2014 to August 2017 within the action
“Strategic partnership” – *International Partnership for Improving The Quality of Teaching in Vocational Schools*

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AN INNOVATIVE TEACHING METHOD PREPARATION PROCESS

GLOSSARY

Brainstorming is a process designed to obtain the maximum number of ideas relating to a specific area of interest. Brainstorming is a technique that maximizes the ability to generate new ideas. Thesaurus alternatives to Brainstorm: Excitable state, exhilaration, elevation, intoxication, abandon, thrill, transport, ecstasy, fever, whirl, warmth, ferment, stew, turbulence, boisterousness, outburst, outbreak, explosion, commotion, hysterics, madness, rage, rampage.

Case study – analysis of specific case studies. The method of training meant to improve the skills and gain experience in the following areas: identification, selection and problem solving; work with information - understanding of the details described in the situation; analysis and synthesis of information and arguments; work with the assumptions and conclusions; evaluation of alternatives; making decisions; listening and understanding of other people - teamwork skills.

Discussion. An extended communication (often interactive) dealing with some particular topic. Group discussion – a discussion among participants who have an agreed (serious) topic. Panel discussion – Discussion of a subject of public interest by a group of persons forming a panel usually before an audience. Public discussion – Free and open discussion of (or debate on) some questions of public interest.

E-learning is an e-learning organized environment. E-learning allows any kind of traditional teaching materials to transfer to electronic environment, which may consist of video, audio, textual materials, as well as animations and simulations.

Facilitator – The person who has the job of making the brainstorming session run smoothly. They keep things moving and make the process easier. (Facilitate = make easier)

Hypertext. Computerized information of browsing and selection system that users with the help of specially created associative links (hyperlinks) can select the information of interrelated files regardless of their placement in the PC (computer) memory.

An interactive lecture is an easy way for instructors to intellectually engage and involve students as active participants in a lecture-based class of any size. Interactive lectures are classes in which the instructor breaks the lecture at least once per class to have students participate in an activity that lets them work directly with the material.

Moderator. A person or thing that moderates (kept or keeping within reasonable or proper limits; not extreme, excessive or intense). A person who presides over a panel discussion on radio or television. A member of an online message board or electronic mailing list with privileges and responsibilities to approve or reject messages and uphold the terms of service.

Probortunity. Because of the difficulty in determining the difference between a problem and an opportunity and because there are many negative implications in using the word "problem", the word probortunity has been created. Probortunity is the merging of the word "problem" and "opportunity". A probortunity can take any form: challenge, question, mystery, concern, problem, puzzle, difficulty or opportunity. Probortunity is an all-inclusive word to describe something you want to improve or change for the better.

The project (in the literal translation from the Latin - "thrown forward") is interpreted in the dictionary as "plan, idea, text or drawing of something that precedes its creation.

THE MOODLE EDUCATIONAL PLATFORM

INTRODUCTION

One of the most important innovations in education is the introduction of e-education, which is one of the EU Lisbon strategy guidelines. E-learning provides a new and differentiated approach which prepares students for work and life in a modern information society. Nowadays and in the foreseeable future optimal e-learning environment platform choice is MOODLE (Modular Object-Oriented Dynamic Learning Environment).

Aim:

Provide insight into the MOODLE course development and use of methodology, to learn the use of e-learning competencies.

Tasks:

Mastering the use of e-learning competencies: MOODLE e-course development and use, preparing different training materials for e-learning and their placement to e-course, using various e-learning tools and e-learning methodologies in the learning process.

During the working process to create, test and use your own e-course for your work.

MOODLE is described as e-learning environment, but it also has the following common characteristics: the e-learning platform, study management system, course management system.

MOODLE is created based on a social constructionism theory: e-course is based on activities, the idea that studies are more effective in a social group collaboration, the study process is creative; it's free, open source, open standard system based on a new educational philosophy, common work, so it is not only methodologically and pedagogically effective e-learning solution, but also economically advantageous. [9]

MOODLE is an e-learning solution with the highest degree of accessibility for users: it can be used from any Internet access computer with any of the most popular operating systems (Microsoft Windows, Apple Mac OS, Linux, etc.) and the most popular Internet browsers (course makers: Mozilla Firefox, Google Chrome) and the open source version of Google Chromium, Microsoft Internet Explorer, but students can also use Opera, Safari, Opera Mini browser, etc.).[52]

MOODLE can be used connecting to mobile devices: mobile phones, iPhone, PDA, palm computers, the iPad, netbooks, etc., which gives students the opportunity to learn in formal and informal environment: public transport, cafes, parks, school corridors, etc.

There are 4 combinations to meet teacher and student:

1. Different rooms, at different times,
2. Different rooms, the same time,
3. The same room, but at different times (the previous classifications are usually not included but it is possible if students come to a specially equipped room (for example, computersimulators) at any convenient time,
4. The same room and the same time. [9]

MOODLE concept is based on the idea "mixed learning". We are not talking about the usual education, carried out wholly or partly in the distance form. The approach where all of the latest educational and methodological materials and educational innovations for the group of

subjects, teacher transfers into a special format of "e-learning", which allows to solve two major problems:

- Make education qualitative, competitive, the most effective and complete;
- Make education accessible to the widest audience, including consumers from other countries.

However, the potential of electronic technology can be realised only with the use of resources, with a clear psychological and pedagogical justification. In the traditional learning process there is a practice to spread learning materials in electronic form - from linear text files in MS Word format to structured hypertext in HTML, which (with all the advantages of the last variant) do not provide the independent activity of students.

Improving the efficiency of electronic resources to support traditional forms of education provides the integration of three components:

- providing a structured learning text and its explanatory multimedia illustrations;
- providing training exercises with the help in the form of tips;
- organization of interim and final control level of learning materials.

Using this approach, the teacher creates his own training course which in the best way combines all the digital materials of the subject, as well as developing tasks which require a high level of concentration among students.

MOODLE - is a powerful integrated system for the development of high-quality interactive e-learning courses, which can be used to support full-time studies as well as the distance learning. Often MOODLE is understood only as the environment for placing educational materials, such as file storage. But it is not true! It is a tool that provides students not only the access to learning materials, but also allows them to create individual educational forms.

The basis of individualization of training is the realization of the feedback: knowledge control, communication of students with the teacher and each other. This control can be partly (but only partly!) assigned to the computer. [29]

USED METHODS OF MOODLE FOR WORKING-OUT ELECTRONICAL LEARNING COURSE

MOODLE has the widest range of opportunities to work-out high-quality interactive e-learning courses, and full implementation of the learning process in an electronic environment, including:

- Various options for formation and presentation of educational material,
- Testing the knowledge and control of progress,
- Communication and organization of the student community.

Moreover, all the basic options of MOODLE system were developed with a focus on the pedagogy of social constructivism, which means the active involvement of students in the process of knowledge formation and their interaction with each other. Although the system is intuitive and simple enough to use, it enables teachers to implement creative projects of different complexity levels. The main advantages of using the MOODLE system in the learning process are the following:

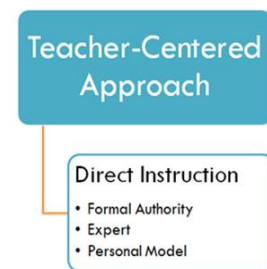
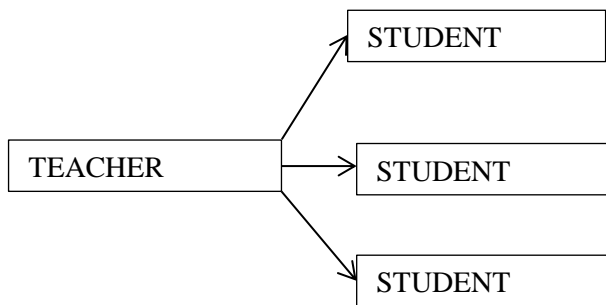
- the best possible adaptation of the educational process to the age and the individual cognitive abilities;
- control of the educational process and, especially, the process of information assimilation: at any time it is possible to make corrections by the teacher;

- providing the student condition of psychological comfort, as in the study of new material, and in the control of acquiring knowledge and skills;
- "openness" of the informational field: the volume and the level of training information can be any high;
- unlimited opportunities to use a variety of teaching methods. [23]

The basic idea of MOODLE is not connected with the abandonment of traditional forms of learning. On the contrary, the possibilities of the electronic media are used in addition to existing forms of education, creating two formats of study: mixed or distant.

Let's look at some examples:

Passive method



Scheme 1. USC, School of Education © 2014

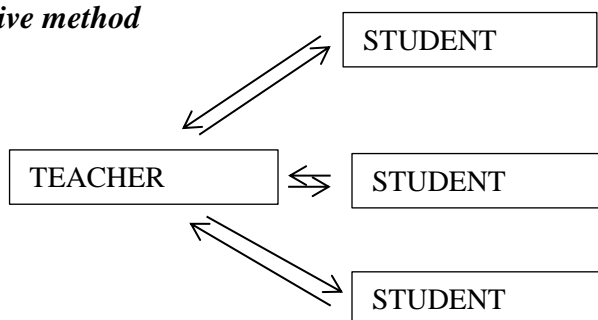
“ + “

- All materials are available in one place
- A student can study according to his acceptable place, time and tempo
- It is convenient for a teacher to follow and to manage each achievement

“ _ “

- Students are passive performers
- A teacher has an authoritarian working style
- A low motivation

Active method



Scheme 2. USC, School of Education © 2014

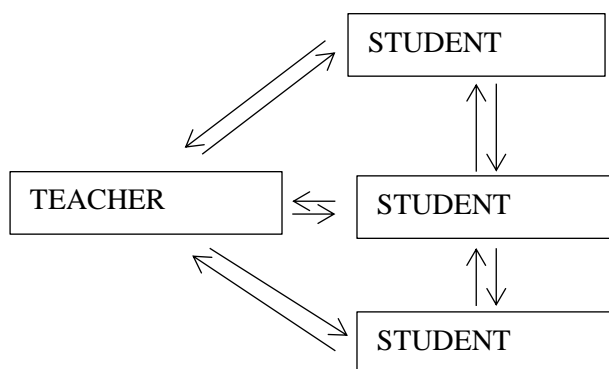
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- Students' participation
- It is convenient for a teacher to follow and to manage each achievement
- All materials are available in one place
- A student can study according to his acceptable place, time and tempo

“ _ “

- There is no students' cooperation
- Some students are still passive

Interactive method



Scheme 3. USC, School of Education © 2014

“ + “

- Students communicate with each other, experience exchange
- Students learn how to cooperate
- Students' activity dominates
- All materials are available in one place
- High motivation
- A student can study according to his acceptable place, time and tempo
- A student is learning continuously and a teacher is perfecting himself all the time

“ _ “

- There is no students' cooperation
- Some students are still passive. [44]

Active and interactive methods are obvious. They change the teaching process, the teacher and student roles. Interactive learning - is primarily dialogue learning. From the impact of object, the student becomes the subject of interaction; he is actively involved in the learning process. The features of this cooperation consist of:

- joint immersion in the problem field of the solved task, so the student is included in a creative space;
- agreement of the chosen implementation means and methods of solving the tasks;

Joint activity means that each individual makes his own special contribution; there is an exchange of knowledge, ideas, and activity variants. This happens in the atmosphere of goodwill and mutual support, which allows obtaining not only new knowledge, but also develops cognitive activity, improving it into higher forms of cooperation and collaboration.

When using interactive methods the teacher does not provide ready-made knowledge, but encourages students to independent search. The activity of the teacher gives the way to the activity of the students, and the task of the teacher is to create conditions for their initiative. Teacher refuses the role of so called filter with the selected learning information, but serves as an assistant in the work, one of the sources of information. Interactive learning is widely used in intensive training.

To learn and use these methods, the teacher must know the different methods of group interaction. Online learning provides an understanding, cooperation, mutual enrichment. The main advantages of interactive forms of learning:

1. Students learn the new material not like passive listeners, but as active participants in the learning process, which reduces the part of classroom load;
2. Students acquire skills to use modern technical facilities and technologies of processing the information processing;
3. Students acquire the ability to find independently the information and determine the level of reliability;
4. Relevance and efficiency of the received information; students are involved in problem solving - opening their minds;
5. Flexibility and availability. Students can be connected to educational resources and programs of any computer in the network;
6. The use of such forms as e-tests (interim and final), enables a clear administration of the educational process;
7. Interactive technologies give the opportunity of constant contacts of students with the teacher. It is important to understand that the use of network resources should not exclude direct contact with the teacher and students among themselves.

Using interactive forms of learning involves modeling life situations, the use of role-playing games, joint problem-solving. Creating a course, the teacher can include in the content any number of resources (text pages, web pages, links to files, directories) and any number of active elements. At the same time, for all elements of the course, it is possible to make evaluation, including scales made by the teacher himself. All evaluations can be viewed on the special page of the course evaluation.

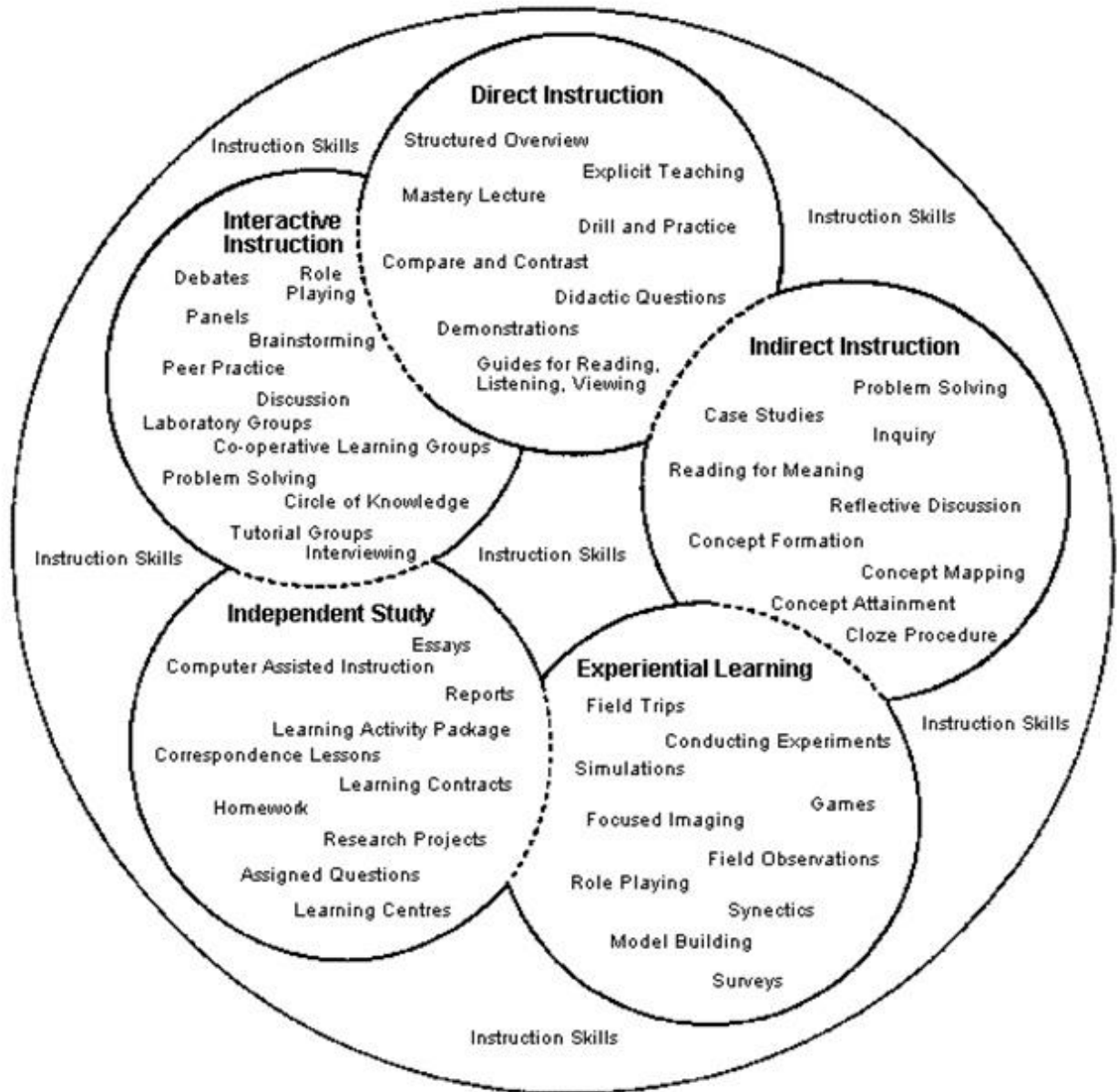
The learning process using interactive forms has several advantages, allowing to realize the basic methodological principles:

- considerable motivational potential;
- confidentiality;
- a high degree of learning interactivity than the work in the classroom;
- lack of fear of making a mistake;
- the possibility of multiple repetitions of learning material;
- modularity;
- dynamic access to information;
- free access;
- presence of a constant active referral system;
- the possibility of self-control;
- compliance with the principle of developing training;
- individualization;
- ensure the visibility and multiplicity of information.

All of these mentioned features help to solve one of the major challenges of modern education - formation of students' critical thinking and communicative competence. It's clear that you should control not the person, but the process of his development. Students should be taught to search, interpret, compare, critically evaluate, discuss, and express their opinion, to justify it, to make choices, to take a decision and to implement it into their lives. [55]

SHORT REVIEW OF INTERACTIVE LEARNING METHODS

Methods are used by teachers to create learning environments and to specify the nature of the activity in which the teacher and learner will be involved during the lesson. While particular methods are often associated with certain strategies, some methods may be found within a variety of strategies.



Scheme 4. Instructional strategies (Knowels, 1980; Cafarella, 2002)

Capable instructors are aware of the principle of active learner participation. "Given the choice between two techniques, choose the one involving the learners in the most active participation". Below is a sample of techniques categorized according to participant involvement.

Levels of Learner Involvement

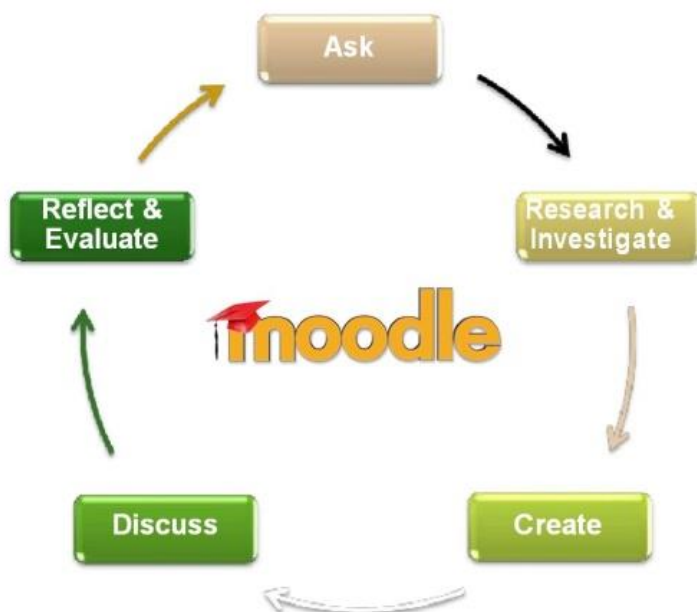
Low Involvement	Medium Involvement	High Involvement
Lecture Panel discussion Demonstration Computer – based drills Computer – based tutorials Socratic dialogue Tutorials	Group discussion Behavior modeling Observation Reflective practice – blogs, journals Asynchronous online forums E-mail and listservs Audio/Video conferencing 3D Interactive Learning activities	Role play Debates Case studies Simulations WebQuests Internet searches Concept mapping Trial and error Storytelling Jigsaw Educational gaming Second Life – Sims Real – time relay chats In – basket exercises Structured experiences Problem – based learning Project – Based Learning Collaborative Learning Inquiry Learning

Table 1. Techniques categorized according to participant involvement (Cafarella, 2002) [46]

In order to achieve the best results, it is important to understand and manage Moodle resources, activities and a full knowledge of methods and techniques.

RESOURCES AND ACTIVITIES

Using Moodle Activities and Resources

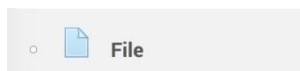


Scheme 5. Using Moodle and e-assessment Methods during a collaborative Inquiry learning scenario (Kasimatis A., Petropoulou O. 2014) [19]

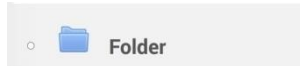
Using Moodle resources for theory and experimentation

Moodle Resource Type

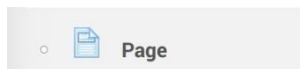
What does it do?



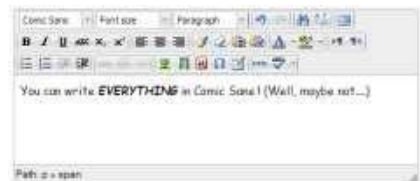
Upload various types of files online (text, audio, video, flash)



Organize files inside folders



Create HTML pages using an online rich text editor, embedding files and objects



Organize pages as chapters in a virtual book

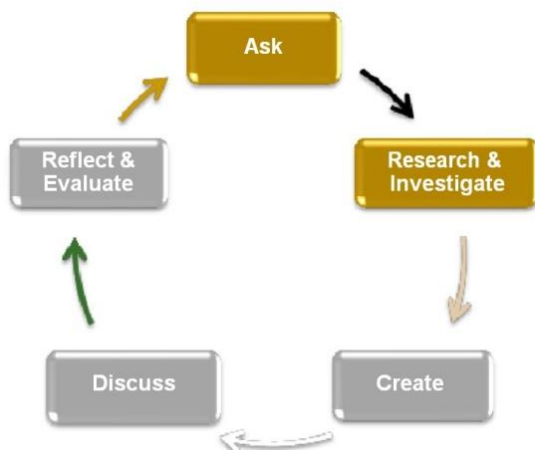


Use external links opened inside or outside the platform

How can we use it?

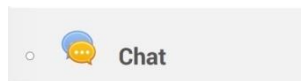
- Deliver educational resources in various formats
- Use interventional multimedia for virtual experiments
- File sharing
- Deliver structured course material for study
- Create online learning material efficiently and effectively
- Deliver course resources according to site design
- Use custom HTML for special coding
- Group resource pages in an orderly and tidy fashion
- Use external resources embedded in course material

Where can we use it?



Moodle Activity Type

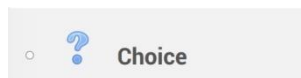
What does it do?



Facilitate a real-time synchronous discussion in a course



Create asynchronous discussions



Create online polls for questions with multiple choice answers



How can we use it?

- Strengthen student online communication
- Help students communicate in real time
- Prevent students from leaving the course’s platform
- Promote online debates and discussions
- Promote knowledge sharing and mutual assistance
- Facilitate teacher – student communication
- Facilitate file sharing among students
- Present questions and confine possible responses
- Help students focus on particular aspects – solutions
- Share results and create public opinion on certain subjects

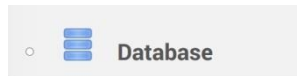
Where can we use it?



Using Moodle activities for student collaboration

Moodle Activity Type

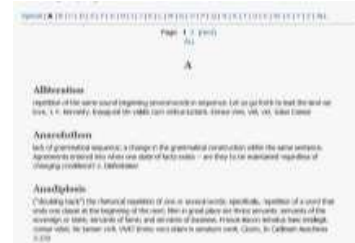
What does it do?



Create a knowledge base of structured information for educational terms



Create and maintain a list of definitions, like a dictionary

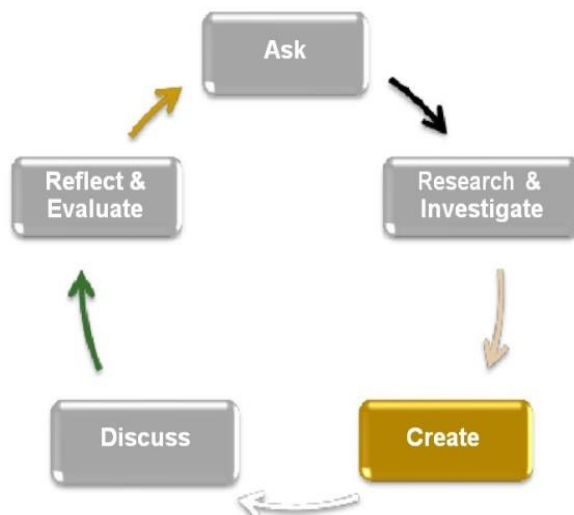


Create a collection of collaboratively authored web pages that anyone can add to or edit




How can we use it?

- Create well-structured and customizable information for special scientific terms and phenomena
- Use for collaborative reports for experiments
- Create scientific formulas, equations, etc.
- Create a collaborative dictionary
- Create a combination of all student deliverables in one set of web pages with various multimedia content
- Create and edit web pages easily
- Create grouped “wikies”
- Brainstorming
- Relate cause and effect
- Help students create correlative facts and procedures

Where can we use it?



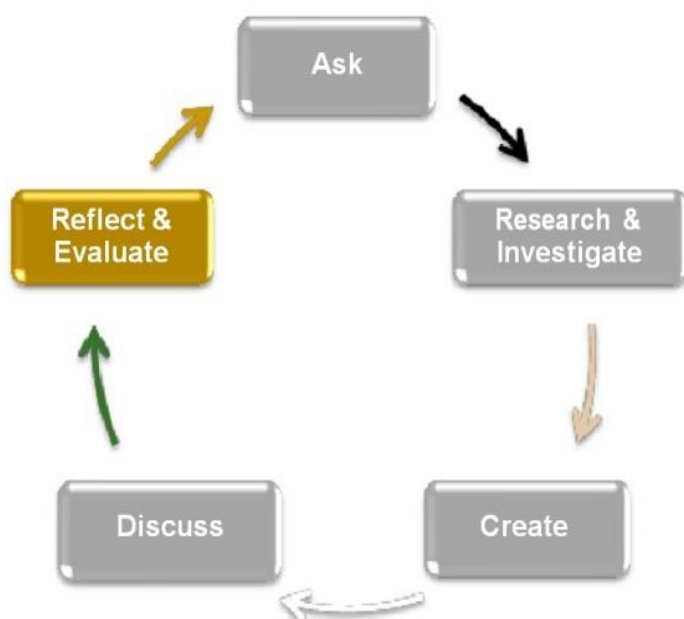
Using Moodle activities for providing feedback

Moodle Activity Type	What does it do?	Quiz question types
 Assignment	Grade and give comments for assignments created on and off line	<ul style="list-style-type: none"> • Calculated • Description • Essay • Matching • Multiple Choice • Short Answer • Numerical • True/False • Drag & Drop • Molecule Design • Regular Expression
 Quiz	Design and set quiz tests, which may be automatically marked	
 Workshop	Facilitate self and peer assessment	

How can we use it?

- Perform qualitative evaluation upon student deliverables
- Use advanced grading methods (rubrics, marking guide)
- Inform students and give feedback
- Create special types of answers for scientific questions like molecule design and regular expressions
- Give instant feedback to students
- Use multiple criteria for assessing submissions
- Give submission examples for better understanding
- Form student working groups
- Share student deliverables
- Create structured surveys with various types of answers
- Share results with students
- Students can evaluate the learning process

Where can we use it?



e-Assessment as the added value of scenario

Advanced Grading Methods

What does it do?



Simple Rubric

Criteria based assessment with descriptive levels for each criterion

Item	Not done	Not done	Not done	Not done	Not done
Header	Not done	Not done	Not done	Not done	Not done
Footer	Not done	Not done	Not done	Not done	Not done
Table of contents (TOC) by TOC	Not done	Not done	Not done	Not done	Not done
Bibliography	Not done	Not done	Not done	Not done	Not done



Marking Guide

Criteria based assessment with maximum mark ups

Item	Not done	Not done	Not done
Header	Not done	Not done	Not done
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Table of contents (TOC) by TOC	Not done	Not done	Not done
Bibliography	Not done	Not done	Not done



Learning Analytics Enriched Rubric

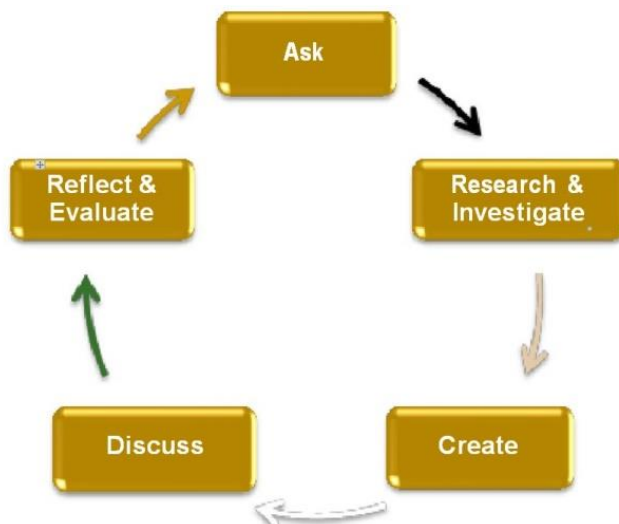
Interaction analysis criteria based assessment with descriptive levels for each criterion

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Header	Not done	Not done	Not done
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Table of contents (TOC) by TOC	Not done	Not done	Not done
Bibliography	Not done	Not done	Not done

How can we use it?

- Distinguish learning and educational objectives
- Provide descriptive assessment and analytic feedback
- Use for almost every type of learning subjects
- Use for self & peer assessment
- Less complicated criteria based assessment
- Use just a maximum mark for each criterion, no levels
- Embedded Interaction Analysis indicators
- Evaluate collaboration interactions, past grading and studying of course resources
- Automatic grading using Learning Analytics

Where can we use it?



Why?

- Primary assessment
- Formative & Summative assessment
- Continuous & Final assessment
- Convergent & Divergent assessment
- Assess products & processes

The added value of the proposed e-Assessment tools and techniques can be summarized on the following...

- Assessment of learning outcomes and acquired knowledge via Quizzes and Assignments
- Clear specification of educational and instructional goals and objectives
- Criteria based and descriptive assessment via Rubrics
- Assessment of student interactions involvement, participation, cooperation and support to others via Enriched Rubrics (Learning Analytics e-R plugin) using Learning Analytics from Moodle log data
- Peer and Self-assessment via Workshops
- Holistic evaluation for every step of an Inquired Based Learning scenario. [19]

Conclusions

According to student and teacher feedback from field tests based on the proposed tools, derived the following...

- Moodle was greatly appreciated by teachers for providing various learning activities and resources
- The learning process became intriguing and more interesting to students
- Student engagement, participation and collaboration was increased as apposed to traditional learning
- Educational and instructional objectives where clear from the beginning of the course to students
- Student assessment was well structured and easier to perform by teachers
- Evaluation results where completely understood by students

DEVELOPMENT OF AN INNOVATIVE TEACHING METHOD IN A VOCATIONAL SCHOOL CREATED WITH THE SUPPORT OF INNOVATIVE MULTIMEDIA TECHNOLOGIES AND ICT, AND FOCUSING ON TEACHING WITH THE USE OF MOBILE TECHNOLOGY (D-LEARNING AND M-LEARNING) **THE STRUCTURE OF BUILDING INTERACTIVE FORMS OF LEARNING**

MOODLE itself does not motivate students to learn, does not organize the learning process. By its structure, Moodle virtual environment is interactive, so it can significantly increase the degree of learning. Interactive training implies very specific and predictable aims. The aim is to create a comfortable learning environment in which the student or listener feels his success, his intellectual consistency, which makes the process of learning productive, to give knowledge and skills, as well as provide a basis for work on solving problems after the training is over.

The whole process of creating interactive course can be divided into several stages:

1. Working-out educational complex of the course; before creating an online course, you must indicate its main aims and objectives, content, structure and purpose, and to identify the main types of activities, which will be used by a particular resource.
2. Structuring the course material and placing it on the MOODLE platform;
3. Filling the resources and activities that allow to apply learning materials, as well as elements that allow to organize training;
4. Editing the course. [29]

The order of the interactive lessons:

1. Preparing a lesson

Teacher chooses the theme, form of interactive lesson, which can be effective for working with the given theme in a group. Working-out any interactive lessons you should pay special attention to the following points:

- 1) Audience of a lesson, the choice of the theme:
 - a. age of the audience, their interests, future profession.
 - b. the time frames of the given lesson.
 - c. previous knowledge of students in this theme.
 - d. interest of the group in this lesson.
 - 2) The list of necessary conditions:
 - a. clearly defined aim of the lesson.
 - b. prepared handouts.
 - c. provided technical equipment.
 - d. defined audience.
 - e. defined main questions and their order.
 - 3) Necessary details preparing each lesson:
 - a. clarification of the problems which will be solved.
 - b. designation of prospects for implementing the gained knowledge.
 - c. certain practical block (activities of the group during the lesson).
 - 4) Handouts:
 - a. program of the lesson.
 - b. handouts should be adapted to the student audience.
 - c. material should be structured.
 - d. the use of graphics, illustrations, diagrams, symbols
2. Introduction:

Introduction with the theme and aims of the lesson.

- students are introduced with the proposed problem situation, trying to find its solution, and the aims which they should achieve;
- teacher informs students about the framework conditions, the rules of work in the group, gives clear instructions about their allowed activity frames during the lesson;
- explanation of terms, meanings etc.

Possible rules of work in the group:

- to be active.
- to respect the opinions of the group.
- to be friendly.
- to be punctual, responsible.
- do not interrupt.
- to be open to cooperation.
- be interested.
- to seek to find the truth.
- to follow the regulations.

- to be creative.
 - to respect the rules of the group
3. The main part: Features of the main part are determined by the selected form of interactive lesson, and include:
 - a. clarification of participants' positions;
 - b. Formation of groups and organization of communication between groups. Similar positions of different participants are joined together, common trends of given questions in the lesson frames are formed, audience is divided into groups with different positions. Then follows organization of communication between groups;
 - c. Interactive positioning:
 - i. clarification of the set of positions of the audience,
 - ii. general understanding of the content for these positions,
 - iii. rethinking of this content and filling it with a new meaning,
 - iv. formation of a new set of positions, taking into consideration the new meaning.

4. Conclusions (reflection)

Reflection begins with a concentration of the participants on the emotional aspect, feelings experienced by the participants during the lesson. The second stage of reflective analysis of the lesson is evaluation (the ratio of participants to the substantive aspects of the used methods, the relevance of the chosen topic, and others). General conclusions of a teacher are made at the end of the reflection.

Possible list of questions for reflection:

- What has made the greatest impression on you?
- What helps and disturbs you during the lesson to make the given task?
- Was there anything that surprised you during the lesson?
- What were you guided by in the decision-making process?
- Did you take into consideration the opinion of group participants?
- How do you evaluate your own actions and the actions of the group?
- If you play this game again, what would you change in the model of your behavior?

It should be noted that during the lesson preparation which is based on the interactive forms of learning, the teacher is faced with the question not only about choosing the most effective and appropriate forms of learning of a definite theme, but has the possibility to combine multiple learning methods for solving the problem, which, undoubtedly, contribute to a better understanding of students.[23]

Conclusions:

MOODLE platform is the most flexible tool for using various forms of interactive learning. The principle of engaging students in the learning process during interactive lessons always corresponds the following criteria:

- lesson - not a lecture, but the common work.
- all the participants are equal regardless of age, social status, experience, profession.
- each participant has the right to his own opinion about any question.
- there is no place for direct criticism of the person (can be criticized only an idea).
- all what was said during the lesson is not a guide to action, but information for thinking.

Moodle - Tool Guide for Teachers



	What you want to achieve (pedagogy)	Information Transfer Is it a tool for disseminating information from you to your students?	Assess learning Will this tool allow you to assess your students' learning?	Communication & interaction Can it be used for communication & interaction among participants (you & your students)?	Co-create content Can you & your students collaborate & create content together?	Bloom's Allows what thinking order? •Remember •Understand •Apply •Analyse •Evaluate •Create
Add FILE Upload a file (Word Document/ PowerPoint)	Easy like an email attachment. But can your doc stand on its own?	Yes. Only teachers can upload files to course site. So definitely a push-tool.	Maybe. Use to give task. Collect student files through Forum or Assignment.	No. It's a distribution tool. No option for interaction or communication.	Maybe. Use to give task. Collect student files through Forum or Assignment.	None. This is not a learning activity, but information transfer.
Add Folder Upload a group of files	Easy like email attachments. But can your docs stand on their own?	Yes. Only teachers can upload a folder of files. So definitely a push-tool.	Maybe. Use to give task. Collect student files through Forum or Assignment.	No. It's a distribution tool. No option for interaction or communication.	Maybe. Use to give task. Collect student files through Forum or Assignment.	None. This is not a learning activity, but information transfer.
Add Page Create a webpage in Moodle	Easy just create the page using the HTML editor, adding multi-media if needed.	Yes. Only teachers can create the page. So definitely a push-tool.	Maybe. Use to give task. Collect student files through Forum or Assignment.	Maybe. Embed or link to interactive web2.0 widgets into the page eg Voicethread.	Maybe. Use to give task. Collect student files through Forum or Assignment.	None. This is not a learning activity, but information transfer.
Add Book Create a series of webpages. *This is a custom Moodle Plugin*.	Easy just create a set of pages using the editor. Embed media if required.	A way to present information to students. Can be printed by chapter or as full book.	Maybe. Use to give task. Collect student files through Forum or Assignment.	Maybe. Embed or link to interactive web2.0 widgets into the page eg Voicethread.	Maybe. You can link to external collaborative sites e.g. Google Docs, wikis or blogs.	None. This is not a learning activity, but information transfer.
Add URL Link to a web page	Easy. Find the web address (aka url - the bit that starts with http://), copy it, paste it.	Very easy way of directing students to information outside of Moodle.	Not directly. Option is to link to external activities such as student e-portfolios & blogs.	Maybe. Link to external tools eg Google Calendar, groups, blogs or wikis.	Maybe. You can link to external collaborative sites e.g. Google Docs, wikis or blogs.	6/6 Can do all of the above, depending on where you link to.
Wiki Use to enable collaborative page creation.	Tricky. Decide on individual & group settings. Can be hard to master. Get some training.	Yes. Use as information site. Allow editing only by teachers or by any participant.	Wiki is versatile & allows this, e.g. design a formative assessment activity.	Not suited for discussions. Use in brainstorming, planning, collaborative writing...	Yes. Students can collaborate & explore topics, discuss them & write together.	5/6 Understand, Apply, Analyse, Evaluate, Create
Glossary Use for learning activities that gather resources or present info	Default settings are good. Try to set it so the author's name is shown.	Use glossary to define terms or present info. Better yet, let the students add to it.	Glossary is versatile & allows this, but you need to design the right learning activity.	Not suited for discussions. Students can read other entries & comment or rate.	Although original author can edit an entry, class can collect reviews, resources, etc.	5/6 Understand, Apply, Analyse, Evaluate, Create
Database Allow students to collect, share & search created artifacts	Tricky to set up. Know what you want before you build. Get some training.	Can be used for teacher to present info, but better to let the students add to it.	Database is versatile & allows this, but you need to design the right learning activity.	Not suited for discussions. Students can read other entries & comment or rate.	Students can share info & files in searchable way. Create joint collections.	5/6 Understand, Apply, Analyse, Evaluate, Create
Survey Use to gather data from students about teaching of the course	Easy. Choose from 3 types to assess Attitudes, Incidents and Constructivism.	No. The survey tool is not a distribution channel.	Not directly. Used for gathering feedback to help improve the course.	No. Only allows one way communication from student to teacher.	No this is an individual activity, not a group activity.	2/6 Indirectly helps student analyse and evaluate the learning.
Feedback Use to gather data from students on any topic.	Easy but takes time. Configure and then add questions.	No. The feedback tool is not a distribution channel.	Yes. Use to have students self-assess their understanding before and after.	No. Only allows one way communication from student to teacher.	No this is an individual activity, not a group activity.	6/6 Can do all 6 but this requires you to be creative in your approach.
Great fit	How to use this guide		Tweeters to Follow		Need more Moodle help?	
Can work w/ some learning design	<ul style="list-style-type: none"> Are you a teacher new to Moodle? Use this guide to pick the right tool for the job. Know which tool you want to use? Follow its row across to see its strengths & weaknesses. Know what you want to achieve? Pick a column and follow it to see which tool will help you do it. 		<ul style="list-style-type: none"> @catspyjamasnz @ghenrick @markdrechsler @michelledmoore @moodlefairly @moodleman 		<ul style="list-style-type: none"> Community Forums at http://www.moodle.org Documentation at http://docs.moodle.org Follow #moodle on Twitter! Blogs to follow <ul style="list-style-type: none"> http://www.cats-pyjamas.net http://planet.moodle.org http://www.somerandomthoughts.com http://www.markdrechsler.com 	
Not best tool for the job						

Scheme 11. A Moodle 2 version of the Moodle tool Guide (Henrick Gavin 2013) [47]

	What you want to achieve (pedagogy)	Information Transfer Is it a tool for disseminating information from you to your students?	Assess learning Will this tool allow you to assess your students' learning?	Communication & interaction Can it be used for communication & interaction among participants (you & your students)?	Co-create content Can you & your students collaborate & create content together?	Bloom's Allows what thinking order? •Remember •Understand •Apply •Analyse •Evaluate •Create
Ease of use How easy can this be set up by you?						
Choice Use for student decision making, voting and topic selection.	Easy. Define the options and whether you want to limit numbers per choice or not.	No. The Choice is best assessing and querying the students on a topic.	Use choice to quickly test understanding like multi-choice questions	No. Tip: Use the forum or chat instead.	No. Tip: Use forums, glossaries or wikis instead.	3/6 Can do 5 but this requires you to be creative in your usage.
Quiz Use to assess learning, formative or summative.	Tricky & takes time. Set up quiz, then questions. Consider your categories.	The quiz is aimed at assessment, not as distribution channel. Tip: use as self-diagnostic.	Quiz can be timed & secure. Has essay, mc, true/false, matching, & other questions.	No. Tip: Use forums instead.	No. Tip: Use forums or wikis instead.	6/6 Can do all 6 but this requires you to be creative in your assessment.
Lesson Use for presenting branched info or testing	It can be tricky to set up, make sure you plan the lesson first. Worth the effort.	Great to present information in a branched, guided way. Implement adaptive learning.	Yes, allows grading. Use as branched quiz, scenario, case study, role play.	No this is an individual activity, not a group activity.	No this is an individual activity, not a group activity.	6/6 Can do all 6 but this requires you to be creative in your assessment.
Assignment Use to collect, assess & provide feedback on assignments	Easy. Choose from 4 types. Both online & offline assignments are possible.	No. However, can include contextual content for the assignment.	Yes. Set due dates & maximum grades. Collect assignments and provide feedback.	No. Only allows very limited interaction between teacher & student.	No. Currently it does not allow group assignments. Use forum or wiki.	6/6 Indirectly. Depends on your assessment design.
Workshop Use to collect, assess & generate peer review of student work	Tricky and takes planning & time. 4 stages to follow for setting it up.	No. Better: to use another tool for this.	Yes. Students can be assessed on their contribution and on their review of others.	No. Allows for feedback but overall limited interaction.	No. Currently it does not allow group assignments. Use forum or wiki.	6/6 Indirectly. Depends on your assessment design.
SCORM Use to present content, media and assess retention.	Can be tricky to make before adding to Moodle, uses 3 rd party application.	Yes. Great for presenting multimedia content and animations.	Yes, allows grading. Can embed questions and interactive challenges.	No, this is an individual activity, not a group activity.	No this is an individual activity, not a group activity.	6/6 Can do all 6 but requires you to creatively design a learning object.
Chat Hold real-time text chat discussions with class	Easy to set up, requires some effort to manage	Use for invited speakers. High speed message volume. Risk of non-interaction.	Chat is versatile. Can use in formative assessment activities.	Yes. Hold debates, small group review sessions and hold drop-in session for Q&A.	Yes. Students can collaborate & explore topics, discuss them & write together.	5/6 Understand, Apply, Analyse, Evaluate, Create
Forum Use for many types of learning activities	Easy. Forum has usable default settings. A name & description is enough.	Share resources as links or files. High message volume? Risk of losing info.	Forum is versatile & allows this, e.g design a formative assessment activity.	Yes. Students communicate with you & peers. Interact as a class or in groups.	Yes. Students can collaborate & explore topics, discuss them & write together.	5/6 Understand, Apply, Analyse, Evaluate, Create
Moodle Mobile Use to have students record video, audio into Moodle	Easy to use. Submits directly to the user Private Files in Moodle.	Easy way to add video / audio / imagery to other activities.	No. But yes in conjunction with other activity for student created content project.	Able to message participants on course from mobile.	No. This tool enables students individually create media / content.	2/6 Best used with another tool.
External Tool Use to connect to a 3 rd party learning activity	Requires access to the external tool before configuring.	This depends on the tool that it connects to - it could be anything.	Yes, but the Tool must pass back the grades into Moodle to be recorded.	Maybe, if the tool provides options for interaction & communication.	Maybe, if the tool is a collaborative environment like MedialWiki or Drupal.	6/6 This can be anything - depends on the connected tool.
Great fit	How to use this guide		Tweeters to Follow		Need more Moodle help?	
Can work w/ some learning design	<ul style="list-style-type: none"> • Are you a teacher new to Moodle? Use this guide to pick the right tool for the job. • Know which tool you want to use? Follow its row across to see its strengths & weaknesses. • Know what you want to achieve? Pick a column and follow it to see which tool will help you do it. 		<ul style="list-style-type: none"> @catspyjamasnz @ghenrick @markdrechsler @michelledmoore @moodlefairy @moodleman 		<ul style="list-style-type: none"> • Community Forums at http://www.moodle.org • Documentation at http://docs.moodle.org • Follow Moodle on Twitter! Blogs to follow • http://www.catspyjamas.net • http://planet.moodle.org • http://www.somerandomthoughts.com • http://www.markdrechsler.com 	
Not best tool for the job						

Scheme 12. A Moodle 2 version of the Moodle tool Guide (Henrick Gavin 2013) [47]

APPLICATION OF MOODLE PLATFORM USING VARIOUS ACTIVE AND INTERACTIVE FORMS OF LEARNING

INTERACTIVE MOODLE LECTURE: USING AND WORKING-OUT

Aim:

Organization of the process of obtaining the theoretical content online

Tasks:

- The development of communication skills;
- Updating the content of the studied lecture.

Interactive lecture combines aspects of traditional lectures and training games involving the participants in the educational process under the full control from the teacher-lecturer. An interactive lecture format is characterized by a high degree of flexibility, which is achieved by the constant scrutinizing of participants' reactions.

Features of interactive lecture:

- Interactivity: participants are offered and sometimes even required to talk with each other and with the lecturer;
- Rich content: involves a presentation by the lecturer;
- Activity: requires the active participation of the students and the constant processing of information;
- Bilateralism: the presence of a frequent feedback from both the lecturer and the audience;
- Adjustability: the teacher has full control over the level of interaction between the participants;
- Efficiency: the information received with the help of interactive lecture is actively processed and can be easily taken from the memory after a long time. [9]

The lecture, as well as any kind of presentation, has several kinds and is divided:

1. by the aims:
 - a. Opening or introductory lectures,
 - b. Basic lectures,
 - c. Concluding lectures,
 - d. Lectures containing overview courses
 - e. Lectures containing special courses.
2. by the form of training:
 - a. Informative lectures,
 - b. Episodic (once-only) lectures,
 - c. Review lectures.
3. by the way of the organization:
 - a. Informative lecture,
 - b. Problem solving lecture,
 - c. Lecture - visualization,
 - d. Lecture - together,
 - e. Lecture with previously planned errors,
 - f. Lecture - press conference,
 - g. Lecture – discussion,
 - h. Lecture – conversation,
 - i. Lecture with the use of feedback,
 - j. Lecture with supporting notes.

Methods of lecture preparation:

1. formulation of lecture topics;
2. definition of the aims;
3. selection of the type;
4. pointing out the main key concepts;
5. making the plan;
6. selection of the content;
7. structuring the content and preparation of lecture notes;
8. determination of the kind, involving students into the lecture and selection of means, which will help students to be involved into their own activities (questions, tests, assignments, tasks);
9. selection of the means to ensure the aim achievement of lecture (language of schematic pictures, video, electronic educational resources).

Using one of the main elements of MOODLE in the learning process



"Lecture" presents the student learning material in the interesting and flexible way. This is due to the fact that in some way the course element "Lecture" resembles a computer game with a nonlinear development of the plot. All the content of the lecture devoted to a specific topic is divided into separate pages ("portions" of information). Going to the next page of the lecture (§), is possible only after positive student's responses to the controlling question (? Questions) related to a separate part of the information provided on the page (§). You can create a complex way of lectures, depending on the answers of each page. As a result, the students learning the theme of lectures step by step will go through its pages ("levels") until the final evaluation. This strategy encourages the informal assimilation of educational material. "Lecture" in MOODLE - it's just the name of the tool that is equally suited to the creation of a lecture in its usual meaning. [49]

The methodology of the lecture:

1. Introduction
2. "The Bridge"
3. The basic part
4. Conclusions

Introduction

Introduction has two main aims:

- Orients the students
- Helps the teacher to interact with the audience.

Full introduction of the lecture includes:



Topic, Aim, Objectives, Literature, e - recourses, Evaluation

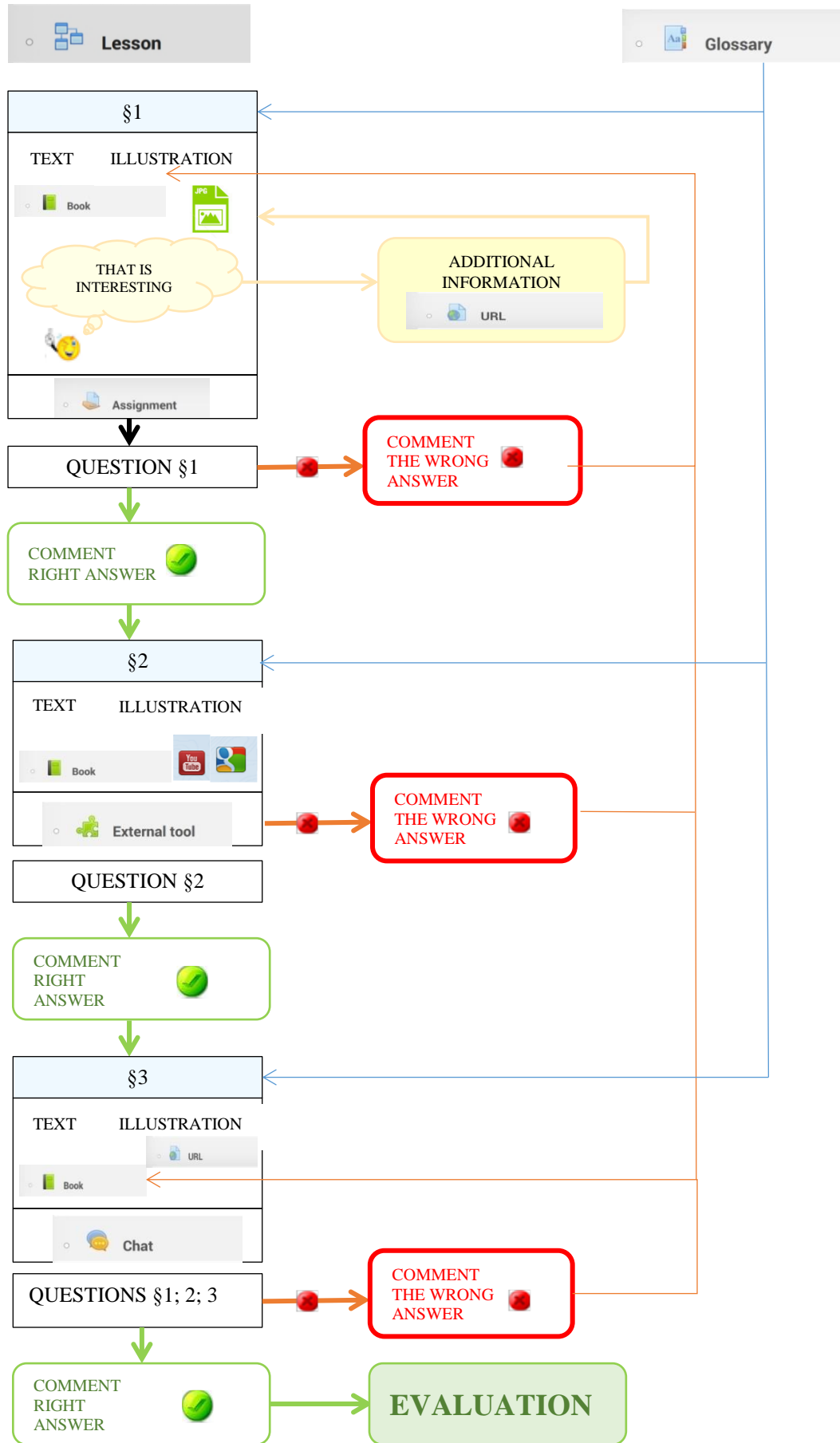
"The Bridge"

The transition from the introduction to the main part, directly to the discussion of the topic. Focus can be:



unexpected or even shocking statement; humor, joke; a brief story (from personal experience, the parable, anecdote); rhetorical question ...

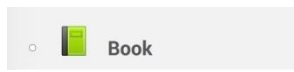
The basic part



Scheme 13. Interactive lesson form (<http://www.cdp.tti.sfedu.ru/distant/mod/page/view.php?id=2124>)

The optimal volume of lectures 3 - 5 paragraphs, the presence of more than 7 paragraphs is desirable, more than 9 - is unacceptable. [27]

Recommendation for the lecture paragraphs

 It is necessary to state briefly the text of paragraphs and illustrate it with


visual materials ( drawings, diagrams, tables, charts, etc.);


- The size of a single paragraph should not exceed two screens;
- In each section of the lecture should be a change of activity. The best variant is one

interactive element in each paragraph.

- Each interactive tool should be used reasonably. Don't use "media for media".

- Adding the additional material.  You can regulate the volume size of the paragraph, adding the optional learning materials into the additional part. This is another very important feature of additional material - alignment of individual educational trajectory, the student chooses himself the depth of immersion in the theme.

- Glossary . The glossary includes the terms which are needed to understand the lectures. Possible categories of the glossary:

- general terms;
- abbreviations;
- special terms;
- directory

Recommendations for questions

- Quantity: at least one question after the first paragraph and at least two questions after each next paragraph, one of which is about the the current paragraph, and the rest about the previous.
- Complexity: questions should not go beyond the already studied lectures. The best variant, if the answer to the question contains the paragraph itself.
- Comments: it is necessary to choose the comment for each explanation; it will help students to realize their mistake.[49]

Thus, the presentation of the material in the form of "Lectures with the elements of activity" allows the student to implement effectively the individual trajectory in learning of the material, facilitates the material repetition by the student, so the teacher provides a tool for studying the activity while working with theoretical material.

Closing part

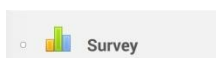


The aim of the lecture necessarily is dictated by its closing part. This means that in the conclusion it is important to summarize briefly all the key ideas in a logical sequence, and the main conclusions.

Evaluation

The evaluation is determined by the settings of MOODLE platform in the part of Lesson activities.

Feedback



METHOD OF DISCUSSION PREPARATION AND REALIZATION

The main approach to method platform usage is not knowledge and theoretical experience of students, but skills to understand problem essence and to find solution ways on practical use basis of existing knowledge. [3]

As one of the organizational active forms of interaction which allows deepening and strengthening the objective position of the teacher, “discussion” is a great opportunity to discuss the acute, complex and current issues at the moment in the professional field, exchange of experience and creative initiatives. The idea of “discussion” is a debate between the teacher and students seeking to find a common solution on a specific issue in the format of a given subject. Discussion of the problem, the exchange of views, experiences, searching for additional opportunities in the discussion of any particular, "hot" issues gives to “discussion ” the dynamism and diversity.

The purpose of "discussion" is to reveal a wide range of opinions on the issue selected for discussion from different perspectives and to discuss not clear issues and ambiguities associated with this problem, and to reach consent on the issues raised.

The objective of “discussion” is to mobilize and to activate the participants to solve specific urgent problems. Therefore, the “discussion” has specific features:

1. Individuality of information when participants during the discussion express not common, but personal point of view. It can occur spontaneously and cannot exactly be formulated. Such information should be treated especially carefully, selecting items of value and realistic, comparing them with the views of other members.
2. Business noise communication during the “discussion”, which corresponds to atmosphere of emotional commitment and intellectual creativity of participants. But this makes difficult a working process for the teachers and students. Therefore, among the expressed points of view, the teacher should identify the important thing, to give speech opportunity to everyone and continue to support this background, since he is the feature of the "discussion". [5]

Discussion assumes:

1. The willingness of participants to discuss the issue in order to identify possible ways of solving it.
2. The presence of a certain position, the theoretical knowledge and practical experience.

The organization of such form of a dialogue is possible, when for the discussion basis are deliberately laid several points of view on the same issue and it brings for all participants acceptable positions and decisions. [40]

Thus, integral parts of the discussion are:

1. Unresolved question;
2. Equal participation of all parties;
3. The development of acceptable solutions for all participants of a question under discussion.

During the “discussion” to achieve positive results and create a business environment you need:

1. To provide the optimal number of participants.
2. To provide technical means working process.
3. To set speeches limit.
4. To ensure that the appropriate design of the auditorium (preferably that a discussion table would be round, and communication would be "face to face”, which contributes to group communication and maximum involvement in the discussion.) [41]

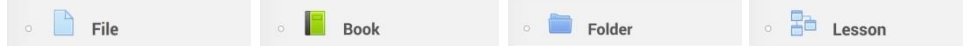
Methods of organization and holding of "discussion"[17]

Typically, there are three stages in the organization of "discussion": preparation, discussion and conclusion.

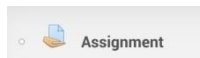
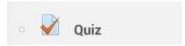
1-st The preparatory phase includes:

1. Selection of the problem (the problem should be acute, urgent, having different solutions). Chosen problem for discussion may be interdisciplinary in nature, it should be of practical interest for the audience in terms of the development of professional competencies;
2. Selection of moderator (Moderator directs the "discussion" that’s why he should at a high level master the art of creating the atmosphere of trust and maintaining the debate, as well as building info). At the initial stage of training it can be a teacher, and later the moderator may be any of the students;
3. Selection of participants. The composition of the "discussion" can be expanded by involving other groups, as well as other teachers, employers, etc;
4. Preparation of the script (holding "discussions" on a pre-planned scenario avoids spontaneity and randomness in the work). The scenario assumes:

- a. Definition of the concepts, terminology;
- b. A brief introductory meaningful speech of the moderator about the theme and the range of the problems within it, the context of the desired discussion;



- c. a list of discussion questions (up to 15 formulations);
- d. the development of "home preparations" answers , sometimes controversial and unusual with a representative sample of information;



- e. closing speech of the moderator;
5. Room with equipment devices (audio- video equipment), and multimedia resources to



support the business and creative atmosphere;



6. Consultation for participants (allows developing in the majority of participants certain beliefs that will continue to stand by them);

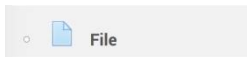
Preparation of necessary materials (in paper or electronic form): it may be statistical data, materials of express – survey, conducted analysis of available information in order to provide the participants and the audience of "discussion".



2-nd Discussion stage consists of:

1. Speech by moderator, when the issues and terminology are defined, the rules are set, the

rules of general technology training in the form of "round table" and information about the general rules of communication.



2. The general rules of communication are the recommendations:
 - a. Avoid common phrases;
 - b. Focus on the goal (task);
 - c. Know how to listen;
 - d. Be active in the conversation;
 - e. Be concise;
 - f. Carry out constructive criticism;
 - g. Avoid offensive remarks to interlocutor.

Moderator must act authoritatively, severely limiting the time the participants of the "round table".

3. Conducting of "information attack» (Brain storm): participants declare themselves in a certain order, operating with convincing facts, illustrating the modern state of the problem.



4. The presentations of participants and identification of existing opinions for the questions, focusing on original ideas. In order to maintain the sharpness of the discussion it is recommended to formulate further questions.

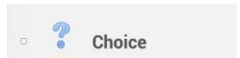


5. Responses to discussion questions;
6. Summing up the mini-results by the moderator about the presentations and discussions: the formulation of the main findings on the causes and nature of the disagreement on the researched topic, ways to overcome them, the system of measures to solve this problem.

3-rd Final (post-discussion) stage includes:

1. Summing up of the final outcomes by the leader;
2. Making recommendations or decisions;
3. The establishment of the overall results of the event.

4. (Evaluation)



The vision of the problem essence	The correctness of the used terminology from scientific point of view	Validity	Correctness in relation to the opponent	Availability of presentation
The ability to be oriented in the changing situation	The veracity, reliability, accuracy of definitions	The clear formulation of the arguments and counterarguments. Using the cause-and-effect relationships. Usage of examples.	Tolerance, others' views respect, no personal attacks, denial of stereotypes inciting discord and hostility	Intelligibility
0-2	0-1	0-3	0-2	0-2

«BRAINSTORMING»

“Brainstorming” – is an easy way to generate ideas for solving the problem. During a brainstorming session, participants easily exchange ideas as they arise, so that everyone can develop other people's ideas. [42]

“Brainstorming” is an effective method, as appropriate:

- Discussion of controversial issues,
- To stimulate the non-confident students to take part in the discussion,
- Collection of a large number of ideas for a short period of time,
- Clarification of awareness or readiness of the audience,
- You can use this form of work for feedback.

Aim:

To identify the awareness and readiness of the audience in a short period of time.

Objectives:



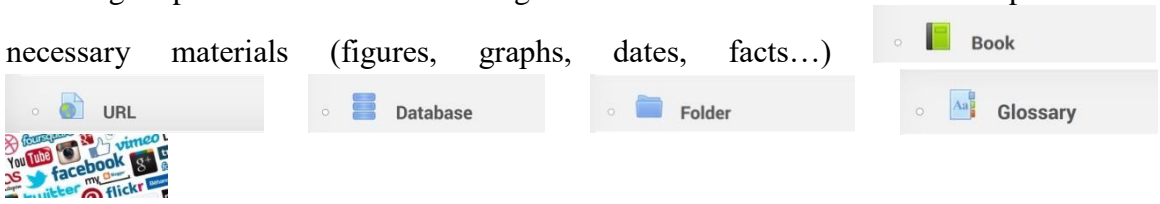


- To create a common understanding of knowledge level among students relevant to the lesson;
- Development of communicative skills (communication skills).

The methodology of holding:

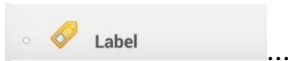
1. Give participants a specific topic or question for discussion.
2. Suggest expressing their thoughts on the matter.
3. Save all named statements (take them all without objections). It is allowed to clarify statements if they seem obscure to you (in any case write down the idea as it named by the participant).
4. When all the ideas and opinions are expressed, you need to repeat what task has been given and list all that you written down from the participants' words.
5. Finish work by asking participants what they think, what conclusions can be drawn from the get results and how it can be related to the topic of the training.

After completion of the "brainstorming", it is necessary to discuss all the answers, to select major and minor ones.

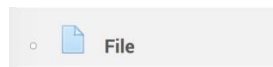
1-st. Preparation

1. Selecting a problem for brainstorming  or  Preparation of necessary materials (figures, graphs, dates, facts...) 
 - URL
 - Database
 - Folder
 - Book
 - Glossary
2. The selection of participants, the formation of working groups. No fewer than four persons, not more than 12.
 - a. Leading should preside. He should refrain from pressuring participants;
 - b. In the group are appointed secretary-observers who record the statements and behavior of speakers.
3. Organization of the workplace. A separate technologically furnished classroom. Groups must be able to communicate with others. 
 - Forum
 - a. Discussion of the issue should take place in a comfortable and relaxed atmosphere.

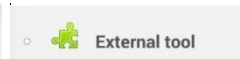
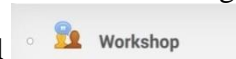
- b. Participants must be unfettered.
- 4. Setting targets. Tasks should not be too enormous. If necessary, they can be divided into subtasks and to be considered separately. A problem is declared



- 5. Acceptance of the brainstorming rules

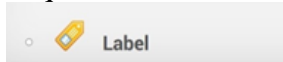


- a. Lack of any criticism
- b. Prospective ideas encouragement
- c. Equality of brainstorming participants
- d. Association and creative imagination freedom
- e. Creative atmosphere in the "game glade" of business meeting
- f. Mandatory fixing of all the ideas expressed
- g. time for the expression of ideas (the group should be given some time) ...



2-nd. Warming-up

A question is declared



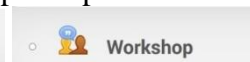
(☺ come up with 30 ways to use a paper clip). All tips on board

“To come up with min 30 ways how to use a paper clip”

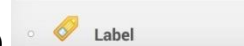
reset for computer	to take the disc from the CD-ROM	zip	latchkey	barrette
to pierce something	ornamentation	to bond paper	holder curtain	clips
to prevent tea in a glass	poking around somewhere	suspend something	gift	to pierce ear
to strengthen the flowers	opener	hook	earring	sewing needle
as a code known for two spies	hand for hours	trinket	marking	bookmark
to hang the calendar	instead of nail	make a short circuit	to make tattoo	to relieve stress
to straighten like a ruler	make beads	tie clip	to scratch somebody	to pass for scrap

3-rd. Extension of ideas

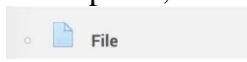
Discussion participants free-form express their ideas, which are fixed.



As soon as there is a delay with the extension of new ideas, the leading asks participants to think over a problem (to return to problem)



After a pause, usually begins a new outbreak of ideas. If this does not occur, the leading displays



with questions whose answers generate such flash.

- The success of "brainstorming" strongly depends on the psychological atmosphere and activity discussion, therefore the role of the leading in the "brainstorming" is very important.
- That he can "break the deadlock" and infuse fresh strength in the process.
- Duration of "brainstorming" is recommended to be at least 20 minutes and not more than 1 hour, depending on the activity of the participants.

4-th. Ideas analysis



- The main rule – to consider every point of view and to analyze it.
- Particularly valuable it is that a counter idea may be the most correct and appropriate for the occasion.

5-th. Brainstorming conclusion



The assessment of the critical remarks and the list of practical use of ideas are formed. As a result of a brainstorming session the outcome is accepted, which is distributed among the participants.



6-th. Evaluation

(Criteria of grading) max = 10 points

The vision of the problem essence	The correctness of the used terminology from scientific point of view	Validity	Correctness in relation to the opponent	Availability of presentation
The ability to be oriented in the changing situation	The veracity, reliability, accuracy of definitions	The clear formulation of the arguments and counterarguments. Using the cause-and-effect relationships. Usage of examples.	Tolerance, others' views respect, no personal attacks, denial of stereotypes inciting discord and hostility	Intelligibility
0-2	0-1	0-3	0-2	0-2

PROJECT METHOD

Project method is pedagogical technology, the aim of which is guided not to the integration of factual knowledge, but to its application and the acquisition of new knowledge (sometimes with the help of self-education) for the active involvement in the development of new ways of human activity. To achieve such a result, it is necessary to teach students to think independently, find and solve problems involving for this aim the knowledge of different topics, ability to predict the results and possible impacts of different solutions, the ability to build relationships. Project activities of students as a method of active learning, demonstrates a way to

organize learning, where you can combine classroom and extracurricular time of learning process, group and individual forms of work, lesson and independent activity of students. [5]

Target of the project activities is the development of:

- The most important competencies for modern life:
 - ability to take responsibility;
 - participation in joint decision-making (communication);
 - regulation of conflicts by non-violent way;
 - spoken and written communication;
 - use of the acquired knowledge to solve practical problems and cognitive;
 - ability of a lifelong learning as a basis for continuing education in professional and social activities, as well as in his personal life.
- Research skills:
 - analysis (identifying problems, selecting information on their own)
 - observations
 - building hypotheses,
 - experimentation,
 - synthesis (generalization).

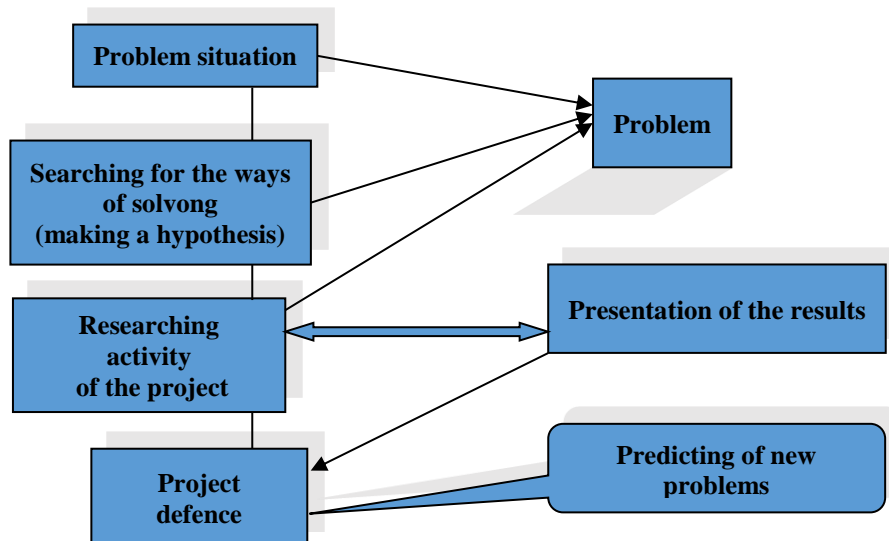
Project method is appropriate to apply if there is:

- A significant problem (research)
- A significance of the result (theoretical, practical)
- Independent activity of students
- Possibility to structure the project.

The following research steps are used:













- Formulation of the learning objectives;
- Formulation of hypotheses and solving them;
- Discussion of the research methods;
- Discussion of the results;
- Collection, systematization, analysis of the experimental data;
- Conclusions. [16]

The essence of the project method:



Sheme 14. The essence of the project method (Polat E.S., 2010) [26]

Structurally-logical scheme, the main phases of the project tasks of different levels:

- 1. Problem-target.** The first phase of the project is the shortest, but very important to get the expected results. At this stage, the teacher encourages students' interest in the topic of the project, outlines the problem field, accents the significance, formulates the problem of the project, and selects the working group. Topics are uploaded by the lecturer to the web page of the course  or to the element of the course «Tasks» . Also, students are free to offer their interesting themes of work. Discussion of the topic, the choice of the group is going through the course elements forum  or chat .
- 2. Engineering phase** involves the construction of the action plan, discussion of the possible ways of obtaining and processing information; searching for creative solutions. The plan is done with the help of the block - "Calendar" , where are written all activity phases of the group. Thus, the student can see when it is needed to pass a certain part of the work for checking by the teacher.
- 3. The activity stage** involves implementation of the project. Students collect the necessary information, using all possibilities of the system MOODLE. During the process of collecting and processing the information are carried out consultations with the project manager in the MOODLE system at the corresponding courses, using the block "Messaging".  . Corrections of the project are made after consultations. Preliminary results can be presented to the teacher. For the discussion of the work students can communicate with each other through the element of the course "Chat" and "Forum". Information received by individual participants is added to the common project and uploaded to the elements of the course «Wiki» , consequently, the project manager and all students can be introduced with it. This stage creates new objective or subjective knowledge, developing students' selective and research skills.
- 4. Control - corrective phase.** The given results are analyzed and corrected during the control corrective phase. At this stage, the students are working on a software product (using Delphi, Pascal, Visual Basic for Applications, etc.), or make their work as an electronic presentation (using Microsoft Office PowerPoint). Realization of this phase promotes the formation of practical skills using ICT in learning activities and develops abilities in analytical, critical and creative thinking of students and teachers.
- 5. Presentation phase.** This includes presentation of the project. The presented work is uploaded to the MOODLE platform for information. The discussion can take place both in the auditorium during the lessons, or distantly with the help of the course element "Seminar"  .
- 6. Evaluation - reflective phase.** This phase is for self-analysis and self-assessment activities, making the conclusions of the work. The phase can be realized using the element of the course "Interview". , «Workbook» . These elements are convenient for making surveys and finding out the ratio of students to the ready – made work. Forming the skills of self-assessment and self-awareness, the ability to defend their position.

Criteria for project evaluation:

- importance and actuality of the problems, the adequacy of their learning thematics;
- correctness of the used research methods and methods of processing the results;
- activity of each participant according to his individual capacity;

- common accent of decision-making;
- common way of communication and mutual help of project participants;
- necessary and sufficient depth of penetration into the problem, attracting knowledge from other areas; conclusiveness of the decisions, the ability to argue their hypothesis, conclusions;
- esthetic of presenting results of the project;
- the ability to answer the questions of opponents.

Project activities of students can be considered successful if the project corresponds to the following criterias:

- awareness in determining the problem, selecting the theme of the project;
- validity of the proposed solutions, approaches and conclusions;
- fulfillment of all projection phases, independence, completeness;
- the level of creativity, originality, and presentation of the used project materials.[16]

Using project method allows you to create an environment of the effective use of intellectual resources of each student. The introduction of this method in the teaching process will enhance the organization efficiency of students' independent work through the use of MOODLE.

CASE METHOD

This method is characterized by the following features:

- the existence of a particular situation;
- finding by the group (subgroups) solutions to situations;
- public presentation of the worked out solution variants for situations, followed by the defence;
- summarizing and evaluation of learning results.[24]

The case - a joined information complex, which can be:

1. Printed case - (the most common, can include graphics, tables, charts, illustrations, all this makes it more visible; by the volume, cases can be from a few sentences to many pages);
2. Multimedia case (depends on the technical equipment of the premises);
3. Video case (includes film, audio and video materials) [35]

Depending on the subject, cases are often divided into personal (situations with the activity by the known people, managers, politicians, directors), the organization - institutional (situations that are typical for really existed organizations, enterprises and their divisions), and multi cases (may include several situations with many participants).

The technology of the method is as follows: according to certain rules of the developed model of a particular situation that occurred in a real life and reflects the range of knowledge and skills that students need to get.

Nowadays, there are two classic schools of case-study:

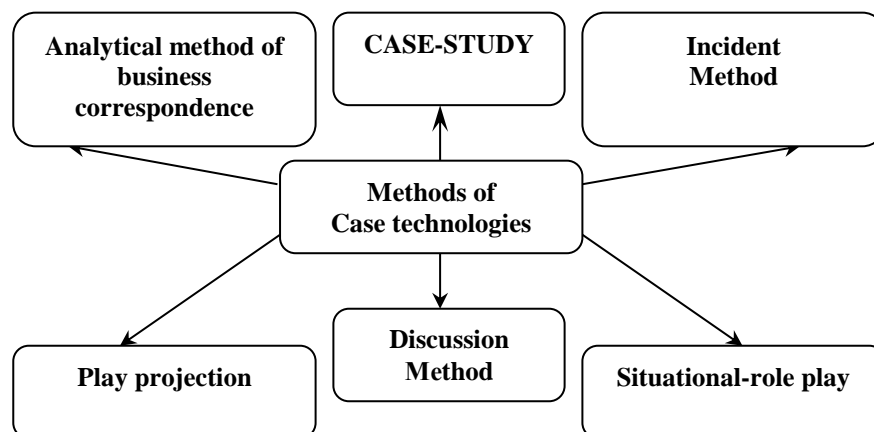
1. Harvard (US) - the aim of the method is to teach searching of the only true solution;
2. Manchester (European), which involves multi-variant solution. This method is interesting because it is interactive method of teaching; it gives the possibility of group work, while learning process, immitating the mechanism of decision-making in life.

Students learn to argue their opinions, get skills to work in a team (Team Job Skills), a generalization; presentation skills and the ability to formulate the question, reasoned response. The method not only helps to learn specific knowledge, but also allows you to establish a link between the content of the curriculum and the real events in the world. [35]

The aim of a case-study method is to analyze the situation (case) occured in a particular situation, working together in a group of students, and work out a practical solution; the end of

the process - evaluation of the proposed algorithms and selection of the best context of the problem.







The main methods used in solving tasks of this kind are presented below:

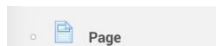



Scheme 15. Methods of case technologies (Soboleva L.A., 2010) [44]

The methodology of the studies with the help of the case method.

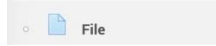

1. Preparatory phase:

- a. This step requires a lot of time, skills, and preliminary work of the teacher. It begins by defining the lesson theme (or its part), where will be applied this method.
- b. Formation of educational aims, objectives of the case, the definition of other key moments (eg, evaluation criteria, methods and deadlines for replies), which can be introduced to the students, place determination of the case in the lesson structure  File  Label ;
- c. Determination of a problem situation which will be later uploaded to the file  File ;
- d. Building a program case card (scenario), consisting of the main theses that need to be put into the text;
- e. Collection and analysis of information. The main sources of information used by the teacher in preparation of the case are also available for students:
 - i. the actual life events;
 - ii. scientific articles
 - iii. fiction and journalistic literature;
 - iv. operational media information;
 - v. statistical materials;
 - vi. scientific publications and Internet - resources.
- f. Selection of the case genre and writing of the case text. The case should consist of three parts:
 - i. supporting information necessary for case analysis (may include previous materials for repetition);
 - ii. description of a particular situation;
 - iii. tasks for Case.
- g. Working – out tasks for students and possible discussion questions and case presentations, a description of possible students’ and teachers’ actions during the case discussion.
- h. Preparation of a final case version. All information is placed to the MOODLE platform by the teacher:  Glossary  Book  URL




 Page (in this case, you can upload the page of statistics and other public institutions) 

2. Lesson. It is worthy of note that the role of teachers in using the case method differs significantly from the traditional role. Teacher consigns his full powers to students; his leadership role is reduced to a minimum. The teacher should resist the temptation to offer his solutions and evaluate the correctness of students' actions during the case work. Teacher's interference in the work of the students should be sharply limited.

a. Students are introduced with the theme, aims, objectives, organizational questions

 File  Label ;

b. Introduction with the situation or situations (case) and its features (student receives a case, and a list of recommended resources); isolation of the main problem or problems. Passing through this phase, it is desirable for the student to fix key ideas from the relevant parts of the subject, in order to refresh his theoretical knowledge for using in the case analysis. You can use the following

MOODLE resources:  Lesson  File 

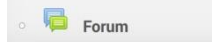
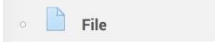
 Book  URL , as well as the internet and literal resources.

You should carefully read case questions and make sure that they are clear. If you have questions, please contact the teacher. Record all of the factors or problems related to the raised questions.

c. Students are divided into groups on a voluntary basis or at random, choosing a team leader and a person for making records. Organization of the work group. The teacher determines the time for working with a case (usually not more than 15 minutes). Direct case work can be arranged in two ways:

- i. each subgroup will perform the work only of one case during all lesson;
- ii. all subgroups work simultaneously on the same case, competing with each other to find the most optimal solution.


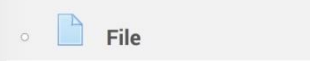
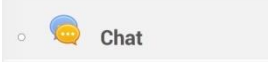
d. For each member of the group it is advised to learn the situation individually while case working. Individual solutions are worked out in each subgroup by fixing results and ideas. All ideas necessarily are recorded, using activities

 Forum or  File . As a result of the case work in the group is

to provide one or more variants of sequenced actions, indication of some important problems, the mechanisms of their prevention and solution. Students provide not only their vision of the solution, but should not forget to analyze their made decision. It is worth to mention that the main task for students is to offer their variant, listen to others taking into account their opinion and work together to reach a common idea.

e. Observation of each subgroup by the teacher in finding individual solutions, teacher can help the group if it is needed. In the discussion process, the teacher can use three models of behavior:

- i. giving hints in the form of additional questions or additional information;
- ii. under certain conditions giving practical answer, the teacher can help with his partial answer if the group has the stalemate during the discussion process;
- iii. the teacher can do nothing, as long as someone is working on the problem.
- iv. Preparation for discussion and debate in the group with fixing results.

 Forum  File  Chat

3. Presentation of the solution

- a. There is a public presentation of the solutions made by the group (any person, not necessarily the leader of the group), during the presentation process the group representative uses an interactive board, or place group's decisions in MOODLE environment with the access to other students; [35]
 - b. Discussion, debate and exchange of opinions.
 - c. Fixing the results.
4. Completion. During this phase are summarized the discussion results, synthesis, analysis of teacher's feedback (questions to the teacher) and final evaluation. [24]

Conclusions

The main advantage of the case method is that the acquisition of theoretical knowledge and the development of skills is the result of the activity of students' group or their individual work. Using this method all contradictions are eliminated, students creatively acquire professional knowledge, skills, abilities and develop their mental abilities.

DISTANCE LEARNING

Distance learning is new, specific way of learning, something different from the usual ways of full-time or part-time learning. It suggests other means, methods, and organizational forms of learning, it is the other way of interaction between teachers and students and students among themselves. However, as any way of learning system and it has the same component structure: aims, content, methods, organizational forms, learning tools. The last three components in distance learning have the specifics of the used technological base (for example, only computer telecommunications, computer telecommunications together with printing equipment, CD-ROMs, case-technology). The most suitable technological solution for distance learning can be considered as a MOODLE platform. [57]



Do not confuse part-time and distance learning. Their main difference is that the distance learning provides a systematic and effective interactivity. Distance learning should be regarded as a new way of learning and distance education (both the result and the process) as a new way of education. However it can not be considered as a completely autonomous system. Distance learning is built in accordance with the same aims and content as the full-time education. But the ways of material presentation and ways of interaction between teachers and students and students among themselves are different. [57]

Thus, on the one hand, distance learning should be considered in the common education system (certainly in continuing education), assuming continuity of its separate units. However, it is necessary to distinguish the distance learning as a system and as a process. As in other ways of education, distance learning involves theoretical understanding of the pedagogical phase, its content and pedagogical (educational technology, methods, ways of learning) components. Consequently, the tasks of pedagogical phase are: the creation of e-learning courses, electronic

textbooks, teaching aids systems, development of network educational technologies of the learning process.

The aims of distance learning:

1. professional training and retraining of the staff;
2. to higher qualification level of the professional staff in specific disciplines;
3. to prepare students according to the specific school subjects for external examinations;
4. to prepare students for entering to educational institutions according to the specific profile;
5. to study the theme intensively, the part of the school curriculum or outside school course;
6. to eliminate gaps in knowledge, abilities, students' skills in certain subjects of the learning course;
7. the basic course curriculum for students who are unable to attend school at all or within a certain period of time for various reasons;
8. additional education of interests.

Accordingly, the target audience of using distance learning system can be:

1. people of all ages, living in areas far from the centers;
2. experts who already have the education and wish to improve their skills, learning new materials or to get the second education;
3. a wide range of students preparing for university entrance;
4. people who do not have the possibility to get the education in the traditional system because of the impossibility of combining study with work (rural residents, workers, etc.);
5. people with medical restrictions for regular education in stationary conditions (need to study at home);
6. prisoners;
7. foreign citizens who want to get an education, but do not have the opportunity to come to study for various reasons;
8. talented people seeking to gain additional knowledge, the second parallel education, acquire educational program in a short time;
9. unemployed people registered in employment centers.

Kinds of distance education.

The most common types of distance learning are based on:

1. interactive television;
2. computer telecommunication networks with different didactic possibilities depending on the configuration (including the first resources and activities of MOODLE platform - text files, multimedia technology, video conferencing);
3. The combination of autonomous information media and the Internet.

The advantage of learning lies in its ability of direct contact with the students who are at different distances from the teacher. At the same time, the unique use of MOODLE platform includes seminars, laboratory tests and consultations; teachers and students are members in using new information technologies and can take part in discussions, forums, etc. Form of distance learning is interactive and it can be considered very promising as it involves the use of computer telecommunication with mode e-mail, teleconferences, information resources and the Internet.

Form of distance learning using MOODLE technology platform.

- Lectures. Methodological content regards lecture as a systematic presentation of the problematic educational material of any question, theme, part, and object.

Lesson Database Glossary . Mostly, the system of distance learning uses installation lectures. In addition, the software allows at the end of the lecture to control the learnt materials and other functions Quiz

- *Seminars.* Seminars are an active form of lessons and are widely used for teaching all academic disciplines. As a rule, they are based on the creative discussions, the debates on the given problem. Chat Forum Questionnaire


Workshop . Consultations are a form of students' manual work and help them to acquire independently learning material. Book File

- *Consultations.* Consultations can be individual or group. During the consultations are drawn up student's individual features (his intellectual moral qualities, especially the characteristics of the mind and student's consciousness: attention, memory, imagination and thinking). Folder IMS content package Label Page URL

- *Laboratory works.* This type of learning is important mostly for technical professions. For their realisation is more often used computer access to the laboratory installations or central computer, simulating an experiment; Folder Page

IMS content package Book File . Control in the educational process is to test the progress and the results of the theoretical and practical acquisition of learning materials. Evaluation of acquired knowledge and skills in the process of distance learning has a particular importance as there is the lack of direct contact between a student and a teacher. The role and importance of objective and multi-criteria control forms of knowledge quality is increased. The main feature of the control system in distance learning is the necessity of additional realization of student's personalized identification to avoid the possibility of learning falsification. Monitoring is realised both by the developed programs on MOODLE platform resources, and answering questions of the test, formed from several parts of MOODLE activity. Assignment Questionnaire Quiz

- *Self-study.* This form of learning is fundamental in the system of distance learning. It uses

all of the above mentioned means of learning. 

Models of Distance Learning

There are the following models based on a network of open and distance learning:

1. The first model - learning on the type of external studies. Education which is oriented to school or university (exam) requirements and is meant for students who can not attend full-time education for different reasons.
2. The second model - learning on the basis of one university. This is the whole system of education for students who are trained distantly; it is based on new information technologies, including computer and telecommunications.
3. The third model - learning, based on the cooperation of several institutions. It requires common distance learning programs for a number of educational institutions in the leading disciplines (as in one country and abroad). The innovation of this collaboration is

to enable any person, without leaving his country and home to get any education on the basis of colleges and universities of partner countries.

4. The fourth model - the autonomous educational institutions, specially created for the purpose of distance learning, in which students can get education in various fields.
5. The fifth model - self-learning systems. Education in the framework of such systems is carried out entirely through video or radio programs, as well as additional materials. [57]

The advantages of distance learning:

- Higher efficiency of learning compared to evening and part-time education;
- Reduction of the study period;
- The possibility of parallel learning;
- Student's independence from the location of the school.

Conclusions

It is proved that the quality and structure of the training courses, as well as the quality of teaching in distance education are often much better than with traditional forms of learning.

- The new electronic technology can not only ensure the active involvement of students in the learning process, but also allow you to control the process.
- Integration of sound, movement, image and text creates a new extraordinarily rich in possibilities learning environment, which will increase the involvement degree of students in the learning process.
- Interactive features used in the system of distance learning programs and information delivery systems allow to adjust and even encourage students' feedback and dialogue, ensuring constant support, which is not possible in the most traditional learning systems.
- Modern computer telecommunications can provide knowledge transmission and access to a variety of educational information, equally and even more effective than the traditional ways of learning.

AN INNOVATIVE TEACHING METHOD EVALUATION PROCES

The evaluation **aim** of students' learning achievements:

- To motivate each student for necessary knowledge of social and personal life, skills and abilities, making objective and professional analysis of each student's achievement.

Tasks:

1. to promote students' responsibility for the achieved results in the learning process
2. to motivate students to improve their learning achievements through self-assessment;
3. to make the necessary learning correction to improve students' learning achievement.

Evaluation is the process which basic questions are as follows:

- What did I (both the student and the teacher) succeed?
- What did I fail?
- What do I need to do further to succeed?

Evaluating students' achievements are used:

1. MOODLE programmed scale;
2. Scales made by the teacher.

EVALUATION is possible in two ways:

1. Student's self-esteem;
2. Teacher's evaluation.

You can choose the method of measuring achievement, knowing precisely the learning aims and the purpose of the task.

Let's scrutinise two evaluation and measurement techniques - ranking evaluation and checklist.

Ranking evaluation is used when evaluated aspects or quality of the results range from low to high, from bad to good, from poor to excellent. If the evaluated aspects or quality of the results is abstract and can be varied by the levels, then the ranking evaluation is the most suitable. This method is widely used evaluating the various learning and training success. Here are some examples where the method of ranking evaluation is use:

1. The student demonstrates originally composed melody fragment that shows a certain concept of his practical skills.
2. The student designs and makes the bench, using the given materials. The result will be evaluated taking into account the general look, the quality, separate details and the originality of the shape.
3. The student demonstrates jumping exercises during the Sport lesson. It is evaluated, taking into account the running speed, jumping amplitude and keeping balance at the time of landing.

„ + „

- The ranking scale is easy to construct.
- It can be clearly and unambiguously interpret.
- The measurements can be processed with popular statistical methods.

„ - „

- Possible disagreements between evaluators.
- Evaluation requires a relatively long time.
- Evaluation ambiguity of abstract things.
- Possible errors.

Formation of ranking scale can be divided into four stages:

1. Evaluated object must be defined. Assessment of skills is a very important in educational programs, especially in vocational programs. Assessment of skills often influences the students' opportunity to continue their training or education program, will they finish or repeat it. As the ranking scale is not used following the definition, you should consider very carefully, what exactly will be evaluated. Precisely developed definitions significantly reduce evaluation errors.
2. Working out the scale. Each evaluated quality needs to be measured; you should work out your own scale. For example, if the evaluated skills are divided into four qualities, then you need four scales. Three commonly used types of ranking scales:
 - a. simple numerical,
 - b. simple graphic,
 - c. descriptive.

Each specific situation requires one of these scales, more appropriate for it than the two others. [11]

Example of simple numerical scale:

Use the specified terms, to evaluate the quality of the carried out work:

	5	4	3	2	1
Accuracy	Very good	Good	Average	Bad	Very bad

	5	4	3	2	1
Koordinētība	Very good	Good	Average	Bad	Very bad

	5	4	3	2	1
Ātrums	Very good	Good	Average	Bad	Very bad

	5	4	3	2	1
Instrumentu lietošanas tehnika	Very good	Good	Average	Bad	Very bad

Simple numerical scale is the most commonly used, it is very efficient. The figures are used to describe the level of quality. If the evaluated features are well understood, then this scale fits very well. However, if the evaluators do not really understand the evaluated features, then evaluation discrepancy and mistakes can appear.[11]

Example of simple graphic scale:

Evaluate the student's ability to correct damage of the device!

Very high	Above average	Average	Below average	Very low
-----------	---------------	---------	---------------	----------

How did the student perform his work?

Very good	Good	The same as others	bad	Very bad
-----------	------	--------------------	-----	----------

How often did the student recognize his positive attitude towards the development of accurate details during his work?

Never	Seldom	Sometimes	Often	Very often
-------	--------	-----------	-------	------------

Students work very well and require special care:

Fully agree	Agree	Both I agree and disagree	Disagree	Fully disagree
-------------	-------	---------------------------	----------	----------------

Simple graphic scale is considered to be a simple numerical scale development. It is assumed that most evaluators can work with five gradation scale. Three - gradation scale is too narrow, but seven or ten gradation scale is often too broad.

Be careful not to use very extreme evaluations for graphic scale, for example, do not include to the scale such phrases as, "work is perfect, layout without any mistakes" and "everything in the layout is wrong." Such phrases should be chosen very, very rare because they narrow the scale. It is also not recommended for levels to use „always" and "never". Compared to a simple numerical scale, simple graphical scale has also disadvantages - its layout takes considerable time, and it takes up more space on the evaluation forms.

Examples of descriptive scale

All work criterias are fulfilled	Some work criterias are fulfilled	None of work criterias are fulfilled
----------------------------------	-----------------------------------	--------------------------------------

Demonstated great skills	Demonstated average skills	Demostrated very poor skills comparing with the given standarts
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- Clearly indicate the scale direction. In principle, there are only two possible scale lines - from positive to negative and from negative to positive.

Scale example from positive to negative:

Very good	Good	Average	Bad	Very bad
-----------	------	---------	-----	----------

Scale example from negative to positive:

Very bad	Bad	Average	Good	Very good
----------	-----	---------	------	-----------

Some test creators use the neutral point, others do not use it. There are no strict laws or restrictions; it depends only on the test creator's preferences.

- Write the precise guidance to the evaluation. The instructions should be clear and broad enough to allow evaluators understand how to evaluate and how to fill in the evaluation sheet. Summing up the results, evaluator must obligatory understand what and where to record and mustn't have quite different opinion. Even worse, if the summing up of the results takes place without the presence of the evaluator, and these mistakes are not corrected.

Checklists.

Checklists are used for evaluation of product quality aspects or several aspects of the process phases. Checklist is a characteristic or list of activities where the observer made notes. It can be a short and simple list of some elements, but can also be a complex monitoring system with precise definitions of expected behavior. In any case, creating the checklist, take into account the appreciable work analysis, aims and analysis of the tasks, also must be carried out pilot observantion with appropriate students.

Checklists are often valid if they determine either activity (product) corresponds to some formal criterias. In many cases, there is a further evaluation using other methods, only if these criterias are observed. For example, presenting the scientific work is checked:

- whether it is well - binded,
- whether it has the title page,
- whether it has author's signature
- whether it has supervisor's signature.

If any of these points are not made, then the work is not accepted for further evaluation.

The following steps are recommended for making a checklist:

- Create a list with all individual actions that are necessary for making the task in general. This list can be created recalling memories or observing the work of a student.
- Observing the number of skilled persons, replenish and improve the list.
- Give created checklist to the skilled expert for reviewing. He should give his advice about possible changes giving description of a present action, a new action which can be included in the checklist and unnecessary action which can be deleted. Each expert's

- recommendation is analysed and discussed. The changes are made if you agree with the expert.
4. Together with one student who is ready to be checked, review again all the checklist. In the case of disagreement, it should be checked, studying additionally work descriptions, learning contents and aims.
 5. Give a checklist for a third person to make simulation of evaluation. Here must be emphasized that the task of the third person is not to evaluate the student's work, but rather to assess the checklist. The task of this step is to identify the unclear phrases and inaccurate formulation of the checklist. [11]

Example of the checklist

Evaluation of Student's research (project)

1. Content
 - 1.1. Correspondence of work content to the selected theme.
 - 1.2. Themes presentation (language, logics, facts, studies).
 - 1.3. Working scientificity (description of work used methods, processing of the obtained results and analysis).
 - 1.4. Student's creative approach to work, independent opinions, conclusions, ability to compare the information if it is controversial.
 - 1.5. Work actuality, practical application.
 - 1.6. List of literature:
 - 1.6.1. Correspondence of literature to the chosen theme and studied problem,
 - 1.6.2. Logical review of literature and processing of up to date information.
 - 1.7. Proper use of references:
 - 1.7.1. reference to the mentioned quotation,
 - 1.7.2. numerical material given in the text
 - 1.7.3. mentioned or described example in the text or a one-time event that is not well known
 - 1.7.4. presented in the text someone's words or opinion,
 - 1.7.5. mentioned in the text some used source, scientific research, article.
 - 1.8. There are several kinds of references:
 - 1.8.1. every page mentioned reference – it is placed at the end of each page below the text, separated from the text with a line
 - 1.8.2. after the text – after chapter or even the end of the work,
 - 1.8.3. in the text.
2. Layout
 - 2.1. Scientific:
 - 2.1.1. title page,
 - 2.1.2. annotation in two languages (Latvian and any other foreign language).
 - 2.1.3. content layout,
 - 2.1.4. introduction – aim and tasks, hypothesis or research question
 - 2.1.5. theoretical and practical part,
 - 2.1.6. conclusions or closing part,
 - 2.1.7. used literature and source list
 - 2.1.8. attachments.
 - 2.2. Technical and aesthetic design in printed form:
 - 2.2.1. written on A4 format pages from one side, letters size in the text (font) -12;
 - 2.2.2. options of page layout:
 - 2.2.2.1. from the left side of the page are left 3 cm,
 - 2.2.2.2. 1 cm from the right side,
 - 2.2.2.3. from the page top and bottom 2 cm,

- 2.2.3. pages are numbered, starting with an introduction,
- 2.2.4. new page has the main part of the work, but sub - part is continued in the started page by typing the title, as provided in the content layout; page is not completed only with a new title.
- 3. Presentation
 - 3.1. Ability to perform at:
 - 3.1.1. posture,
 - 3.1.2. clothing culture,
 - 3.1.3. speech culture,
 - 3.1.4. proper use of literary language.
 - 3.2. Logical, reasoned thoughts presentation, ability to open the essence of the work, to justify and defend.
 - 3.3. Ability to attract the attention, answer questions.
 - 3.4. Prepared technical and demonstration equipment and its proper use.

The student's self-assessment

- ✓ Self-assessment is formed on the feedback which allows making corrections in learning / study process.
- ✓ Self-assessment is reflected in both personal idea of achievements and personal aspirations in the future.
- ✓ It is important that teachers have a positive opinion, but the evaluation is adequate.
- ✓ Feedback formed with teachers is important because it affects the student's personal self-assessment, leaving an impact on self-development.
- ✓ Adequate self-assessment contributes the formation of students' abilities to assess their achievements, not related to the external indicators or other members of the group, but according to the dynamics of personal achievement.

Student's self-assessment can appear as a separate assessment or serve as a part of teacher's evaluation.

Table of student's self-assessment (1) – descriptive scale

Points \ Criterion	<i>1 point</i>	<i>2 points</i>	<i>3 points</i>	<i>4 points</i>
<i>1. Skills of thinking and information processing</i>	I am trying to analyze the information or situation, but I can not clearly explain what kind of project do I need to create. I also can not determine the aim of the project.	I am analyzing the information or situation, turning them into the project, but my description is inaccurate, and it is not clear to others, definition of the project's aim causes embarrassment.	I am analyzing the information or situation, turning them into a project that will help me to understand them. I know which houghtway I would have t to use in the project and how the finished project will look.	I am analyzing the information or situation, turning them into a very detailed project that will help me to understand better the researched problem. I can tell you what I will speak about finishing my project and what I have eventually learned. I can even predict which part of the work will be particularly difficult for me.
<i>2. Defence of my point of view</i>	I can not give examples that would prove this statement.	I present the required information to prove this statement, but I use not enough information or do not have all the necessary information.	I clearly and accurately present all the necessary information to prove this statement.	I clearly and accurately present the information which is necessary to prove this statement confidently. I can not explain why one particular example proves the assertion. I can also explain why each example

				proves the statement. I can also explain the lack of needed sort of information for proving this statement and possible problems caused by this lack. I can name situations in which this statement can not be used.
3. Self assessment of the done work	I'm not trying to evaluate the quality of my work.	I evaluate the quality of my work only from my own point of view. I do not describe the work, and new experience learnt in the process of doing it.	I evaluate the quality of my work and its existing present result. I'm trying to find out how others would appreciate my work. I explain what I can learn thanks to my success.	I particularly evaluate the quality of my work from my own point of view and trying to find out opinion of others. I describe the present and future result of my work. I explain how I can learn from my mistakes.
4. Analysis of the mistakes (the student's ability to find and explain the mistakes)	My suggestions of correcting mistakes are not realistic, negative consequences are not taken into account.	I suggest ways to of correcting mistakes, but my ideas do not always taken into account the possible consequences of these mistakes.	I propose feasible ways of correcting mistakes that take into account the major consequences of certain mistakes in the information or action.	I propose realistic and creative ways of correcting mistakes that take into account the need to correct all possible consequences of these mistakes. My suggestions of correcting mistakes demonstrate that I have used my knowledge of analyzed information or action and tried to find out more than one way of correcting them.
5. Openness in the process of doing given work	I think that only my idea is worth considering, and I do not notice people with a different point of view.	I understand that others' ideas differ from mine, but I do not pay attention to them.	When I come up with ideas different from mine, I try to understand them.	I'm trying to find ideas different from mine, and evaluate them to decide whether they make sense - even if these are unusual ideas.

Table 2. Test theory in Education. (Geske A., Grinfelds A., University of Latvia 2010) [54]

Look at the results after counting the number of points according to the used scale. In addition, you can choose a smaller number of criterias for some works. [2]

Points	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
max 20	1-3	4-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19	20
max 16	1-2	3-4	5-6	7	8	9-10	11-12	13	14-15	16
Etc.										

Student's self-assessment table (2) - descriptive scale (for complex work or work in a group)

Points Criterias	1 point	2 points	3 points	4 points
1. Evaluation of processed information (The value of information for the given task)	I do not define and analyze the information for my task, I do not think about its reliability.	I make mistakes when determining the value of the information for my task and explanation of its usefulness and reliability.	I clearly understand the value of the specific information for my task, and explain its usefulness and reliability.	I clearly define the value of the information for my task, explaining in details how and why it is important, and whether it is authentic. My explanation shows that I clearly understand what information is required for my task.
2. Variety of methods for the information analysis (Comparison-choosing comparison objects)	I choose objects that are not important, interesting or suitable for comparison.	I can choose comparison objects but they are not always important and	I choose important and useful objects that allow me to achieve the task of comparison.	I choose important and useful objects, which allow giving interesting comparisons. I sometimes

		useful for it, in the process of comparison, there may be certain problems.		choose objects that others do not choose because I want to take a fresh look of investigated things as the final point of this process.
3. Classification (<i>selection of objects classification</i>)	I choose unimportant objects, or objects that do not have any connections to the reason that help me to realize this classification.	I choose not so interesting objects or objects which will be easy to classify / categorize.	I choose interesting objects which make me think about in the process of their classification..	I choose interesting and important classification objects, which give me the possibility to look at the investigated objects originally.
4. Effectiveness of communication (<i>Standards of interaction / collaboration (interest in achieving results)</i>)	I do not participate in group discussions and do not show my interest to the aims of the group or work against the aims of the group.	I participate in group discussions and show my interest to the aims of the group, but I do not fulfill the given instructions.	I participate in group discussions and show my interest to the aims of the group. I fulfill the given instructions.	I actively participate in the work of the group and even act as a leader in defining the general aims. I fulfill the given instructions better than it is expected.
5. Ready to fulfill non-standard (unknown) work	I avoid tasks that can not fulfill.	I'm trying to make tasks that I can not do, take something new without finishing the started work, not learning anything that was possible in this process.	I'm trying to fulfill the given tasks, even if I am not sure that I can make them. I finish them or learn everything that I can.	I choose the tasks which I am not sure to fulfill and make them as long as they are not finished or learn everything I can.
6. Standards of interaction / collaboration (<i>intergroup communication</i>)	I do not participate in the discussions, even when I am asked about it. I express my thoughts; it becomes clear that I did not care about the thoughts and feelings of others.	I participate in group discussions, when I am asked about it. When I express my ideas, I do not particularly care about the thoughts and feelings of others.	I participate in group discussions, not only when I am asked about it. When I share my ideas, I demonstrate that I care about the thoughts and feelings of others.	I support those group members who actively communicate and understand the ideas of each others. When I share my thoughts, I demonstrate that I care about the thoughts and feelings of other people; I try to motivate the same behavior of others.
7. Analysis of points of view (<i>the definition of areas of disagreement, the explanation of the reasons of disagreement</i>).	I can identify the subject of disagreement, but I can not explain the reasons for the differences.	I identify the subject of disagreement, but mistakes explain the reasons for the differences. My statement does not contain any clear justification.	I describe the subject matter and the reasons for disagreement. I express my point of view and partially justify it.	I clearly describe the subject matter for people's disagreement. I explain the obvious reasons for disagreement; moreover, I notice and explain the less obvious reasons. I express my point of view with clear justification, visible way of thinking.
8. Decision-making (<i>choice of options corresponding to the stated criteria</i>)	I choose the decision option without thinking about how it relates to the evaluation criteria options or can not explain my choice.	The chosen decision does not satisfy all the criterias and can not be the best problem decision.	I choose the decision that meets all the evaluation criterias. This decision partly solves the problem.	I choose the decisions after careful consideration of all options and criterias. I can not explain why my decision solves the problem effectively. In addition, I talk about important and interesting ideas appeared in the process of decision-making.
9. The reaction to the external evaluation of the made work	I almost did not listen to others' opinions about my work. I do not like to hear that I have to change my approach.	I pay my attention only if information about the reaction to my work is easy to get. If I do not like the source of	I collect basic information about the reaction to my work and decide whether it will help me. I am altering my approach if	I am looking for information about the reaction to my work. I am altering my approach if these reactions convince me that my suggestions

		information, I do not listen to it. I do not like to listen to others.	I am convinced that my suggestions are recognized ineffective. I listen to the advice and decide whether it is useful or not.	will not be effective. I'm looking for people's advice if I know that they will provide valuable information about my work. I study all information, regardless of source, and decide whether it is useful or not.
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Table 3. Test theory in Education. (Geske A., Grinfelds A., University of Latvia 2010) [54]

Evaluation scale: [2]

Points	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
max 36	1-4	5-8	9-12	13-16	17-20	21-24	25-27	28-31	32-34	35-36
max 32	1-4	5-8	9-12	13-15	16-18	19-22	23-25	26-28	29-30	31-32
max 28	1-3	4-7	8-10	11-13	14-16	17-18	19-21	22-24	25-26	27-28
max 24	1-3	4-6	7-9	10-11	12-14	15-16	17-18	19-20	21-22	23-24
max 20	1-3	4-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19	20
etc.										

Teacher's evaluation table (1) – descriptive scale

Points	5 points	4 points	3points	2 points
1. Organization of answer(introduction, main part, conclusion)	The successful use of the correct answer structure; definition of the theme, oratory art	Using the structure of the answer, but not always successful; definition of theme, during the presentation there are some pauses, unsuccessfully constructed sentences, repetition of words.	The absence of some answer elements; unfortunate definition of the theme or its determination after leading questions; confused story, unfinished sentences and phrases, the constant need for assistance.	The inability to formulate introduction and conclusions, student can not identify them even with the help of a teacher; story disintegrates into fragments or phrases.
2. Ability to analyze and draw conclusions	Conclusions are based on the basic facts and are reasonable; competent comparison of the facts, understanding of the key problem and its elements; ability to ask clarifying questions; understanding of the contradictions between the ideas.	Some important facts are missed, but conclusions are correct; the facts do not always match and do not correspond to the part of the problem; the key problem is stressed, but not always deeply understood; not all questions are successful; not all contradictions are stressed.	Many important facts are missed and conclusions are wrong and rarely match the facts, many of them relate to the problem; there are mistakes in the identification of key questions; questions are unsuccessful or are given only with the help of a teacher; contradictions are not stressed.	Most of the key facts are missing, the conclusions are not made. The facts do not correspond to the problem, there is no comparison of them; inability to identify key problem (even wrongly); inability to ask questions, even with the help of a teacher; there is no understanding of contradictions.
3. Illustration of personal thoughts	Theoretical materials are supported by relevant facts.	The theoretical materials are not always supported by relevant facts.	The theoretical materials and the actual reinforcement do not always correspond to each other.	Theoretical and factual materials are mixed, there is no correlation between them.
4. The scientific correctness (accuracy of the actual use of the material)	There are no factual mistakes; details are divided into major and minor, they are identified as plausible, fictional, controversial, and questionable; facts are separated from opinions.	There are mistakes in some of the details or facts, the details are not always analyzed; facts are separated from opinions.	There are mistakes in a number of key facts and in almost every detail; details are given, but not analyzed; the facts are not always separated from opinions, but the student understands the difference between them.	Ignorance of the facts and details, the inability to analyze the details, even if the teacher gives some hints; facts and opinions are mixed and there is no understanding of their differences.

5. Work with the key concepts	All the key concepts are identified and selected the most important of them; right and understandable description is determined clearly and completely.	Important concepts are identified, but some others are missed; right and understandable description is defined clearly, but it is not always full.	There is no division into important and unimportant concepts; they are defined, but not always clearly and correctly; the description is often incorrect or unclear.	Inability to identify concepts, there is no definition of the concepts; students can not describe or understand their own descriptions.
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Table 4. Test theory in Education. (Geske A., Grinfelds A., University of Latvia 2010) [54]

Evaluation scale: [2]

Points	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
max 25	1-3	4-6	7-9	10-11	12-14	15-16	17-18	19-21	22-23	24-25
max 20	1-3	4-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19	20
max 15	1-2	3-4	5-6	7	8	9-10	11-12	13	14	15

Teacher's evaluation table (1) – descriptive scale

Points	5 points	4 points	3 points
1. Work with key concepts, themes, problems	The most important is highlighted; clearly and completely determined; logically aligned; properly and clearly described; student has knowledge of different positions.	There is a partial selection; the most important is highlighted; it is clearly defined, but not always full; logically aligned; correctly and clearly described.	There is a poor selection.
2. Description of the facts and details	There is a division into major and minor; reinforce the theoretical principles prove the information; facts are identified as plausible - fictional - controversial - controversial; they are separated from opinions.	There is the most part of the facts and some of the details; small inaccuracies; facts are separated from opinions.	Some information is wrong; student sometimes correctly answers the questions.
3. The logic of presentation	Logical relationships; there is used proper structure of the response (introduction - the main part - the conclusion).	Partly broken.	There is not enough data on the stated problem.
4. Data analysis	Conclusions are based on facts; validity of conclusions; competent comparison; synthesis and interpretation of data; understanding of the problem; ability to ask clarifying questions; comments.	Some facts do not refer to the problem; sufficient comments on the problem; understanding of the subject.	Student can give insightful comments, but rarely makes it; he disputes more than participates in decision-making; he does not always respond to arising ideas.
5. The manner of material explanation and organization of the presentation	Speech literacy; sequence; plan; oratory art (ability to speak)	Definition of themes and presentation; plan; small logic mistakes; there are pauses in the presentation, a poor sentence structure, repetitive words; use of appropriate vocabulary.	Lack of work development; frequent pauses; do not use abusive language, it is not always appropriate.
6. Valuable guidance	Evaluation and self-esteem; keeping strong reasoned position; application of knowledge in practice; the ability to see in the management of alternative views (the criterion of openness of thought); the ability to listen.	Student knows, but does not use the other points of view; He knows other opinions, but initially is opposed to them; intolerance of other views; lack of participation in the work; partial inattentiveness; thinking mostly of his own ideas and ignoring ideas of others.	Student refuses his point of view; he forgets some facts of his work and can disturb the educational process; constantly needs to be encouraged to answer; he does not always keep notes or listen attentively.
7. Mastering the cultural forms of work	Student is able to set a goal independently and plan his activities for the tasks; he is	Student is able to see and to suggest some ways to solve the given task; he	Student is able to perform the task using given example and in accordance with the provided

	able to learn and apply the information taken from the sources of various types and levels of complexity; student may submit the result of his activities in a form suitable for a wide public consultation.	distinguishes between types of media, understands the specifics of each of them; student may submit the result of his activities in the given way adequately.	instructions.
8. Communication in the educational dialogue and positioning	Student is able to formulate his own position (either consciously plays the role), actively promoting and developing it during the dialogue; he may maintain the pace of a common work for some time, taking responsibility for the team result.	Student is able to formulate his own position, he understands the nature of behavior in the proposed role, but has some difficulties with the argument (number of arguments, their diversity and depth).	Student is able to join someone else's position, or emotionally support someone else's role; he knows how to listen to other people's arguments.

Table 5. Test theory in Education. (Geske A., Grinfelds A., University of Latvia 2010) [54]

When evaluating student's work, the teacher can choose all or some of the proposed criterias.

Evaluation scale: [2]

Points	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
max 40	1-5	6-9	10-13	14-17	18-22	23-26	27-30	31-33	34-37	38-40
max 35	1-5	6-8	9-12	13-16	17-20	21-23	24-26	27-30	31-33	34-35
max 30	1-4	5-7	8-10	11-13	14-16	17-19	20-22	23-25	26-28	29-30
max 25	1-3	4-6	7-9	10-11	12-14	15-16	17-18	19-21	22-23	24-25
max 20	1-3	4-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19	20
max 15	1-2	3-4	5-6	7	8	9-10	11-12	13	14	15
Etc.										

CLOSING PART

Implementation benefits of MOODLE e-learning:

1. Innovative learning environment, known by students with the similarity of the social networks;
2. It can be learnt intuitively, learning process is not complicated;
3. The teacher has tremendous unlimited possibilities to use resources and activities for creating the learning course;
4. The teacher's working time is saved, eg. Tests are evaluated and checked automatically;
5. The course provides an opportunity to increase the amount of the learning materials, as students can learn the individual parts of them;
6. It is suitable for full-time learning - mixed methods (blend-methods);
7. It is ideal for distance learning, part-time learning, students who miss lessons;
8. You may upload the materials gradually;
9. Prestigious for students;
10. Possible integration with e-journal systems (eg. Mykoob, E-Class, etc.);

Recommendations for MOODLE e-learning implementation:

1. Creating one course do not use all MOODLE opportunities; also technically simple e-courses can be methodically used efficiently;
2. Optimally connect e-learning, formal and informal environments;
3. Keep the feedback with students;
4. Giving the response to students, be tolerant, these methods are effective only in a spirit of friendly cooperation.

CONCLUSIONS

1. MOODLE is a free and an open source educational platform; It's used by millions of teachers and students worldwide;
2. MOODLE platform embeds common types of learning resources and various educational activities;
3. MOODLE can be upgraded by various modules and plugins; It can be used to create well-structured learning scenarios; It contains many types of collaboration activities and communication modules;
4. MOODLE collects various logging data for all student interactions;
5. MOODLE platform is the most flexible tool for a variety of interactive teaching methods;
6. Properties of MOODLE help to solve one of the major challenges of modern education - formation of students' critical thinking and communicative competence;
7. Combining the MOODLE system to electronic journals provides an opportunity to improve the work of the teachers organising educational process;
8. The proposed evaluation scales of knowledge, abilities and skills with the use of the percentage relation, allow you to adopt them to the standards of different countries;
9. Innovation in pedagogy includes introduction and implementation of new teaching methods or also using of well-known methods in a new way or environment to facilitate the teaching process. Innovative processes give the opportunity for professional development and self-realization for both teachers and students using the MOODLE platform and the developed methodology.

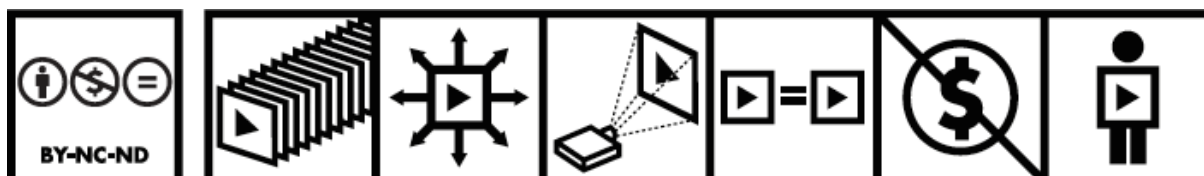
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