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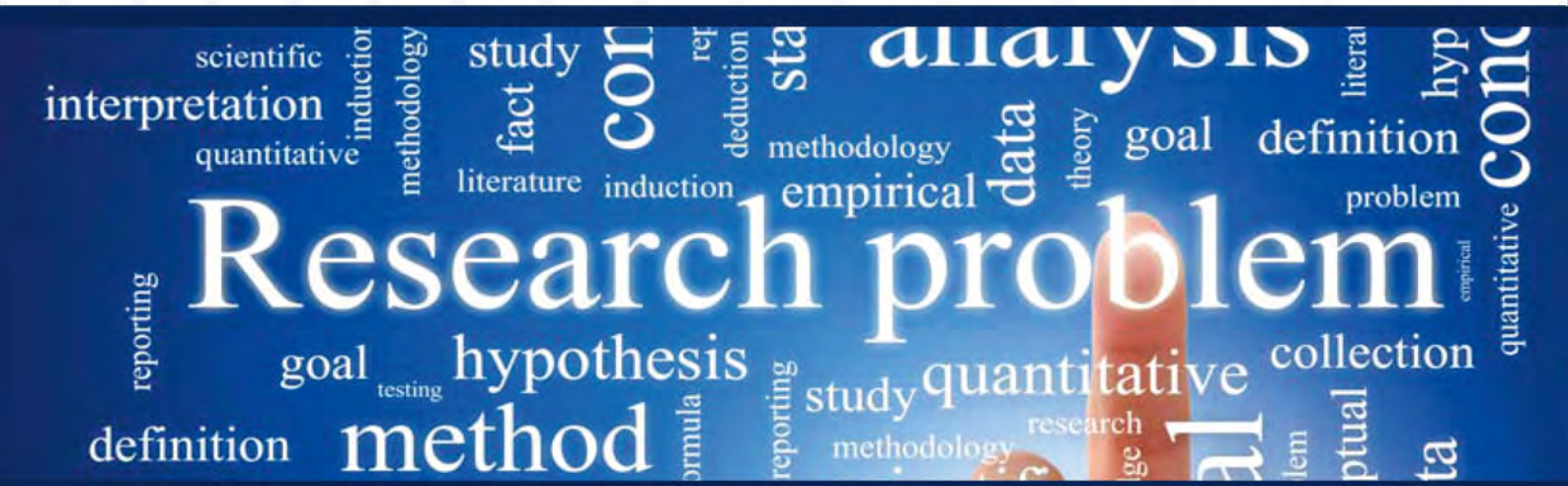
APPROVED PBL PEDAGOGICAL TRAINING CURRICULA AND PROGRAMMES

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Problem / Project-Based Learning

(PBL)

Programme

Training field: Continuous training

Qualification / occupation: 23 Specialists in education

Total number of hours / credits: 10 credits / 300 hours

Admission basis: Master's degree / Doctoral degree

Language of instruction: Romanian

Organisation form: full-time / mixed

Chisinau, 2019

<div align="center">**Explanatory note**</div>

1. Concept of the training module

The *Problem-based learning* programme is designed to ensure:

- deepening, expanding knowledge and skills in the field of educational technologies applied in higher education;
- training competences to apply the PBL philosophy and strategy, from the perspective of the university's operating conditions and the specifics of professional training in various fields;
- creating the professional training context through the PBL strategy;
- determining priorities in formulating practical problems and establishing a partnership with the labour market;
- developing the skills to practice the teaching-learning-assessment activity on the PBL basis;
- exploiting the results of scientific research in the field and combining them with the practical aspect of the professional training;
- developing teamwork skills,
- monitoring individual work
- assessing competences formed through the PBL strategy;

2. The purpose of this specialist: The *Problem-based learning* programme aims at developing the professional skills necessary for the activity in higher education from the perspective of implementing the PBL strategy.

The fundamental objective of the *Problem-based learning* programme is to provide a theoretical and practical basis enabling the beneficiaries to form and practice the system of competences needed to implement the PBL strategy in professional training through higher education.

This system includes:

- The competence to develop curricular documents / curriculum for higher education, based on the PBL methodology, by adjusting to the normative framework in force;
- The competence to formulate problems from the perspective of applying PBL based on practical work;
- The competence to apply active / interactive methods in the context of PBL implementation;
- The competence to assess the results in the context of the PBL strategy;

This system of competences is formed by the study of six content units that will be completed in 300 hours, 76 direct contact and 224 individual working hours, allowing the accumulation of 10 study credits.

Each content unit is primarily focused on the formation of a competence and allows for flexible organization of the training.

Assessment of competences will be done along the way, by performing the tasks indicated in the curriculum.

3. The specialist who attends this module of professional skills improvement will improve his / her activity as a: manager of the higher education institution; dean of the faculty;

head of department, teacher; employee of the quality management system structures in higher education institutions; employee of the university structures that monitor the study process.

4. Learning outcomes according to the ECTS User Guide

4.1. The specialist who will undergo the training based on the *Problem-based learning* programme will know:
- The theoretical and methodological basis of problem-based learning;
- The key concepts of problem-based learning;
- Various models for achieving PBL strategy.

4.2. The specialist who will undergo the training based on the *Problem-based learning* programme will be able to:
- explain the peculiarities of problem-based learning;
- analyze the real possibilities for implementing the PBL in the implementation of the professional programme;
- establish a functional relationship between the outcomes of the programme, the design of the educational process and the form of assessment of the academic results.

4.3. The specialist who will undergo the training based on the *Problem-based learning* programme will be capable to:
- justify the need to change the professional training strategy;
- assess the role of PBL in modernizing the professional training strategy;
- identify / formulate relevant labour market problems for the PBL strategy implementation;
- develop the curriculum for the discipline through the PBL strategy;
- propose ways to optimize and streamline the didactic process in the conditions of functioning of the higher education system in the Republic of Moldova;
- develop strategies for achieving the educational partnership between the university and the labour market;
- promote constructive feedback in the process of supervising problem-based learning

4.4. The conditions for the conduct of the *Problem-based learning* training programme.

The institution has a material and didactical basis for achieving the stated objectives: human resources, spaces suitable for the specific professional development of the university staff, the equipment and the techniques necessary for the training activities, the monitoring of the individual work, the library containing the bibliographic sources.

More than 70% of the teachers involved in the training activities have scientific and didactic-scientific titles.

4.5. Requirements for granting the certificate for this continuing training programme.

The certificate will be granted if proven:
- advanced knowledge and competences in the diversity of teaching-learning strategies in higher education;
- skills to apply the knowledge in developing curricular documents from the perspective of the PBL strategy;

- analytical and problem-solving skills to establish partnerships with labour market representatives;
- teamwork and monitoring project monitoring process competence;
- continuous training / development competence in the design-conduct-assessment of the didactic process, from the PBL perspective;

5. Calendar of activities

Study period	Didactic activities		Examination sessions	
During six weeks	About 12 hours of activity during the week	Monitoring individual work on the go	Current ongoing assessment	Assessment at the end of the module

6. Study plan per months / weeks of study

No.	The name of the course unit / module	Total hours			Number of hours by type of activity		Assessment form
		Total	Direct contact	Indivdual study	C	S/T	
1.	The need to change educational strategies in higher education. PBL as an opportunity for change	15	4	11		4	Presentation of the argumentative speech
2.	PBL: approaches and models	30	8	22		8	Presentation of the study: Model of application of PBL
3.	Development of the university curriculum from PBL perspective	90	24	66		24	Presentation of the curriculum adjusted to the PBL strategy
4.	Identification and formulation of problems	45	10	35		10	Presentation of a didactic strategy for group activity
5.	Teaching and learning strategies from PBL perspective	60	18	42		18	Presentation of the conceptual framework for the

						project, based on a problem formulated together with the employer
6.	Assessment in the light of PBL	60	12	48		12	Presentation of the assessment strategy in the context of PBL
	Total	300	76	224		76	

Note: C – course, S – seminar, T - training

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University consortium

Problem / Project-Based Learning

(PBL)

CURRICULUM

CHISINAU, 2018

I. PRELIMINARIES

The continuing professional training module *Problem / project-based learning* is addressed to teaching staff in higher education and aims to develop the competences needed to apply the philosophy and strategy of PBL to the professional training of students. Changes in the socio-economic environment also require dramatic changes in the professional trining privided via higher education. The traditional, academic type paradigm succumbs to the challenges, but the novelty elements hardly penetrate university traditions. One of the reasons for the reluctance to change lies also in the way of teaching the didactic competences of the university teaching staff. The lack of the tradition of having a psycho-pedagogical training, the formation of teaching-evaluation competences by taking over the example from own pedagogues, has functioned in a more additional context. At the moment, when there is an emphasis on the prospective character of the students' professional training, when the training of new specialists must go beyond the existing realm of the economy and new competences to propel innovation, „reading the lessons from the desk" generates gaps in the qualifications system. Teaching technologies are advancing along with other technologies. The new achievements in the educational field, the diversity of approaches in the process of education, give the university teaching staff the opportunity to choose and adapt judiciously the formative approaches that best correspond to the training in a concrete professional field. PBL is also one of these approaches, which being applied for nearly a century, has proved its efficiency in the university environment, becoming, in recent decades, a true philosophy of the existence of some universities in the world. The essence of this model of educational intervention lies in the experiential learning, based on the active involvement of the student and the interaction between the university and the labor market. Such an approach favors the development of professional competences (those related to the knowledge of the professional field and specific technologies), as well as the positive attitude towards professional activity and the formation of social competences (teamwork, communication, interrelation, etc.).

The module *Problem / project-based learning* is addressed to all teaching staff, regardless of professional experience. The six constituent elements tend to provide the formation of a system of competences to ensure the implementation of the PBL strategy. The successful completion of the module allows for the accumulation of 10 ECTS. The configuration of the module allows the gradual formation of competences through the staggered accumulation of study credits.

Training is the educational form because it is consistent with the mission of this module. It would be paradoxical to provide theoretical courses if the aim is to teach the teaching staff to work interactively with the students. A particular role is played by individual work, through which, according to the tasks stated in the current curriculum, the trainees will practice and adapt the acquired knowledge to the specifics of the professional field of activity.

II. ADMINISTRATION OF THE MODULE

Name	Semester/ month	Total	C	S	P	IW	Assessment
				including			
				Total hours:			
Problem / project-based learning	-	**300**	**76**			**224**	**Viva voce**

III. CONTENT UNITS AND INDICATIVE DISTRIBUTIONS OF HOURS

Nr.	Content units	Training	Individual work
		Hours	
1.	The need to change educational strategies in higher education. PBL as an opportunity for change	4	12
2.	PBL: approaches and models	8	26
3.	Development of the university curriculum from PBL perspective	24	66
4.	Teaching strategies from PBL perspective	18	42
5.	Identification and formulation of problems	10	30
6.	Evaluation of academic results in the light of PBL	12	48
	Total	**76**	**224**

IV. COMPETENCES

1. Elaboration of curricular documents / curriculum for higher education, based on PBL methodology, by adjusting it to the normative framework in force;
2. Problem formulation from the perspective of PBL application based on practical / socio-economic activity;
3. Application of active / interactive methods in the context of PBL implementation;
4. Evaluation of academic results in the context of the PBL strategy.

V. GENERAL OBJECTIVES

At the level of knowledge:

- To identify the theoretical and methodological bases of problem-based learning;
- To define the key concepts of problem-based learning;
- To describe various models for achieving the PBL strategy.

At the level of understanding and application:

- To explain the particularities of problem-based learning;
- To analyze the real possibilities of applying the PBL in the provision of the professional training program;
- To establish a functional relationship between the outcomes of the program, the design of the educational process and the form of evaluation of the academic results.

At the level of integration:

- To justify the need to change the strategy of the professional training;
- To assess the role of PBL in modernizing the strategy of the professional training;
- To identify / formulate relevant problems in the labor market sector to achieve the PBL strategy;
- To develop tye course curriculum through the PBL strategy;
- To propose ways of optimizing and streamlining the didactic process under the conditions of the functioning of the higher education system in the Republic of Moldova;

- To develop strategies for achieving the educational partnership between the university and the labor market;
- To promote constructive feedback in the process of supervising under problem-based learning.

VI. CONTENTS AND DIDACTIC STRATEGIES

1. The need to change educational strategies in higher education. PBL as an opportunity for change

Reference objectives and content	
Reference objectives	**Content units**
At the end of the course the trainees will be able to: - describes the essence of PBL; - identify the PBL theoretical bases / references; - analyze the possibilities of applying the PBL, depending on the specific field of professional training; - appreciate the formative possibilities of PBL in the context of competences-based training; - argue for the need to change the traditional training strategy in the university through the PBL strategy.	- **The paradigm of professional training in higher education;** - Traditional training strategies in universities; - Characteristics of the new educational concept of higher education (Bologna process); - Diversity of approaches and ways of achieving the educational approach; - Background of PBL appearance. Evolution of the concept; - The essence of PBL philosophy and strategy.

Forms and strategies for organizing the teaching activity

Nr.	Organization forms / types of assessment	Nr. of hours	Strategies and dominant teaching activities
1	**Training**	4	• Power Point presentation; • Presentation of graphical representations; • Debates.
2	**Individual activity**	12	• Developing an argumentation speech of 5-10 min. in which the essence of PBL and the benefits for the professional training in higher education are presented.
3	**Assessment**		Current formative assessment: • Describe the essence of the PBL strategy; • Compare traditional strategy and PBL strategy; • Make some arguments in favor of PBL.

2. PBL: approaches and models

Reference objectives and content	
Reference objectives	**Content units**
At the end of the course the trainees will be able to: – describe various models of PBL application; – compare various models of PBL application; – analyze the possibilities of university autonomy in adopting the PBL philosophy / strategy; – identify patterns / elements of models that can be harmoniously integrated into the	• **Ways of PBL application:** – The diversity of the PBL strategy configurations; – The application of PBL in universities in Denmark. University autonomy in the configuration of the design of the study process; – The application of PBL in universities in Germany;

local academic environment.	– The application of PBL in UK universities; – Good practices from universities around the world.

Forms and strategies for organizing the teaching activity

Nr.	Organization forms / types of assessment	Nr. of hours	Strategies and dominant teaching activities
1	**Training**	8	• PPT presentation; • Graphic representations; • Clustering; • Explanation.
2	**Individual activity**	26	• Presentation of a PBL application model.
3	**Assessment**		Current formative assessment: • Describe various models of PBL application; • Justify the possibility and necessity of the diversity of the PBL design.

3. Development of the university curriculum from PBL perspective

Reference objectives and content	
Reference objectives	**Content units**
At the end of the course the trainees will be able to: – define the concept of learning outcome; – identify the normative documents, which regulate the professional training; – determine the elements of the structure of competence; – analyze the types of learning outcomes based on various criteria; – establish the relationship between the learning outcomes, content and ways of achieving the professional training process based on the PBL methodology; – argue the possibilities and limits of the teacher's autonomy in achieving the learning outcomes, based on the PBL methodology; – formulate different types of learning outcomes based on methodological recommendations / rigors.	**Learning outcomes** • **Learning outcomes in the context of PBL strategy:** – the learning outcomes: general approaches; – the types of learning outcomes according to various criteria; – the relationship between the learning outcomes - the content - the training methods. • **Competences as an outcome of the training process:** – the competence structure; – types of competences; – competences in curricular documents / normative framework; – the teacher's autonomy in achieving the competences. • **Formulation of learning outcomes:** – the competence structure; – rigors / ways of formulating objectives. • **Ways of formulating tasks:** – the approach of the correlation of competences with the general and specific learning outcomes; – the real labor market problems and the possibilities of the PBL strategy.
– identify the provisions of the normative and regulatory documents, regarding the structure and content of the study plan; – determine the structure of the academic path based on the institution's PBL philosophy; – establish, dynamically, the share of PBL in the	**Design of the study program** • **General concepts regarding the elaboration of the study plan:** – normative recommendations; – study plan developed on the basis of PBL methodology: diversity of models;

study plan; – establish the structure of the semester in relation to the PBL methodology; – argue the diversity of the configuration variants of the study plan structure based on the PBL methodology, according to the philosophy of the institution; – assess the role and importance of curriculum management centered on PBL methodology at institution, faculty, and department level.	– preliminaries / explanatory note; – the structure of the academic path based on the PBL philosophy of the institution; – progress of the PBL strategy at the study program level. • **The design of the study process at the semester level:** – the structure of the semester based on the PBL strategy; – criteria / principles of structuring; types of configurations in PBL application; – the institution's strategy regarding didactic workload in the application of PBL; – the progress of the PBL strategy; – the PBL didactic process management: responsibilities and coordination at institution, faculty, and department level.
– determine the structure of the curriculum at the discipline, based on the rigors and methodological approaches of the institution; – identify the possibilities of changing the curriculum based on the PBL methodology; – correlate the forms of organization of the study process based on the PBL methodology; – establish ways to conceptualize and deliver content in the context of PBL design; – elaborate the professional training path according to the philosophy of the institution, by correlating the learning outcomes, the process, the product.	• **The design of the discipline / module:** – the structure of the curriculum; management of the discipline / module: criteria for correlating the learning outcomes - the time - the form of organizing the didactic process (theoretical course, seminar, project monitoring, individual work); – ways to conceptualize / select and deliver content; – the final product: ways of correlating with the learning outcomes.

Forms and strategies for organizing the teaching activity

Nr.	Organization forms / types of assessment	Nr. de ore	Strategies and dominant teaching activities
1	**Training**	24	• Interactive methods; • Presentation of posters; • Debates.
2	**Individual activity**	66	• Formulation of the learning outcomes; • Adaptation of the study plan to the PBL strategy; • Development of the curriculum for the discipline.
3	**Assessment**		Current formative assessment: • Identify the types of professional competences to be formed during the academic year; • Determine the structure of the semester by applying PBL; • Argument the design of the study discipline developed based on the PBL.

4. Teaching strategies from PBL perspective

Reference objectives and content	
Reference objectives	**Content units**
At the end of the course the trainees will be able to: – describe the stages of applying the various active-interactive methods; – describe the principles of organizing group work; – explain how to create work teams and role-sharing; – analyze the possibilities of using ICT in PBL; – apply various ICTs to achieve the PBL strategy; – select the methods according to the problems addressed; – integrate a case study into the theoretical activities; – develop teaching-learning strategies depending on the specifics of the problem; – create favorable contexts for the involvement of students in the realization of didactic strategies; – propose ways to resolve team conflicts.	• **Active-interactive methods:** – The need to apply active-interactive methods in professional training; – The diversity of active-interactive methods. Classification; – The relevance of use for training in various fields; – Possibilities to integrate interactive methods into theoretical activities; – Importance of simulations, role plays; case studies for competences training; – Interactive teaching strategies in seminars and laboratories; – Integration of advanced training (Flipped classroom) in teaching. • **Individual and group work in the context of PBL:** – Forms of teaching-learning activity; – Advantages / disadvantages of teamwork; – Criteria for team formation; – Methods to prevent crisis and conflict in the team; – Formulation of individual and group work tasks; – The division of roles; – Monitoring the achievement of individual work; – Supervising individual work achievement. • **ICT tools in PBL:** – MOODLE; – Office 365; – Adobe connect; – SMART board; – Kahoot; – Social networks.

Forms and strategies for organizing the teaching activity

Nr.	Organization forms / types of assessment	Nr. of hours	Strategies and dominant teaching activities
1	**Training**	18	• Practical activities; • Group work; • Presentation of the results.
2	**Individual activity**	42	• Identification of typical cases of professional activity / professional field, relevant to the training of students' professional competences; • Elaboration of the didactic strategy for an activity.
3	**Assessment**		Current formative assessment:

			• Identify methods relevant for the professional training (in the specific field); • Argument the benefits of teamwork; • Formulate criteria to set up the working group; • Suggest solutions to overcome the teamwork crisis / difficulties.

5. Identification and formulation of problems

Reference objectives and content	
Reference objectives	**Content units**
At the end of the course the trainees will be able to: – define the concept / essence of the problem in the PBL context; – describe the mission of the semester coordinator; – determine the ways of involving students in identifying and solving problems individually and in groups; – report on the typology of PBL projects and their distinctive features; – identify the characteristics of independent learning patterns and the specificity of different types of learning in PBL; – analyze the specificity of supervising in PBL; – establish relations with stakeholders to create opportunities for dialogue between the university (teachers, students, supervisors, etc.) and businesses, LPAs, public institutions, NGOs; – use PBL-based learning tools and resources; – designe learning strategies in the context of PBL; – elaborate the methodology for identifying, analyzing and solving the PBL problem / product; – exploit the possibilities of the partnership with the labor market for problem-based teaching.	• **Specificity of PBL problem formulation:** – Trainee profile; – Problem profile; – Presentation of the problem; – Classification of problems; – The problem in the context of PBL sample. Mission. • **Typology of PBL projects:** – Semestr project (with autonomous status set in the study plan); – Mini-project (produced within a course); – The thesis / the annual project; – Internship. • **Typology of PBL projects after Kolmos:** – Assignment project / Predefined theme project; – Subject project; – Problem project. • **PBL supervision:** – Supervision of students through mixed meeting processes (face-to-face and online); – Supervision by asking different types of questions. • **Partnership with stakeholders:** – The notion of stakeholder; – Partnership with stakeholders as an opportunity for dialogue between the university (teachers, students, supervisor, etc.) and businesses, local public institutions, NGOs etc. • **The responsibilities of the semester coordinator:** – The role of the semester coordinator in ensuring the implementation of the PBL; – Supervising the schedule and sessions of PBL; – Supervisor's atendance and reporting forms regarding PBL sessions. • **Methodology for identifying, analyzing, solving the PBL problem / product:** Identifying problems according to the knowledge that needs to be gained: – Explanatory knowledge; – Descriptive knowledge;

		– Procedural knowledge;
		– Personal, normative knowledge.
		Types of problems:
		– Explanatory problems;
		– Problems based on looking for facts;
		– Strategic problems;
		– Problems related to moral dilemmas.
		• **Reporting in groups and individually:**
		– Delimiting tasks;
		– Way of proper reporting of the problem;
		– Team involvement: peculiarities;
		– Individual reporting;
		– Situations favorable to individual reporting;
		– Reflections on the work on the usefulness of the project, the involvement of the team members, the good and bad aspects of the activity; the vulnerabilities of the project and the working process; interaction with the mentor.

Forms and strategies for organizing the teaching activity

Nr.	Organization forms / types of assessment	Nr. de ore	Strategies and dominant teaching activities
1	**Training**	10	• Practical activities; • Presentation of identified / formulated problems.
2	**Individual activity**	30	• Collaboration with employers. The joint formulation of problems; • Presentation of the problems formulated.
3	**Assessment**		Current formative assessment: • Describe various types of problems; • Describe various types of projects; • Identify problems / projects relevant to various learning situations; • Argument the importance / need for a problem / project to build professional competences.

6. Evaluation of academic results in the light of PBL

Reference objectives and content	
Reference objectives	**Content units**
At the end of the course the trainees will be able to: – describe types of assessment in problem-based learning; – analyze the specificity of assessment in problem-based learning; – adapt the assessment strategies to the PBL approach; – develop assessment tools within PBL; – apply competences assessment techniques in the context of PBL;	• **The essence of the assessment in problem-based learning (PBL):** – Role and specificity of the assessment in problem-based learning. • **Types of assessment:** – initial (predictive); – formative (continuous); – summative (cumulative); – elements of the assessment: verification - measurement - decision. • **Assessment methods in PBL:**

– propose ways of diminishing subjectivity in the assessment of activity and products made in the group.	– Adaptation of strategies and assessment methods to the PBL specificity; – Periodicity of the assessment; – Elaboration of assessment criteria; – Assessment in monitoring the problem-solving process; – Use of various assessment tools: progress report, observation sheet / evaluation grid; – Current assessment of knowledge through SMART tests; – Self-assessment or cross-evaluation of solutions by the studenta; – Evaluation of the product / process by the teacher; – Documenting the working process through the attendance card, indicating the activities performed per person, photo / video documentation, useful links, bibliography, minutes; – Current and final reporting of the work through PowerPoint presentation, narrative report, produced product; – Evaluation by descriptors; – Difficulties in assessing group work.

Forms and strategies for organizing the teaching activity

Nr.	Organization forms / types of assessment	Nr. of hours	Strategies and dominant teaching activities
1	**Training**	12	• PPT presentation; • Practical interactive activities.
2	**Individual activity**	48	• Elaboration of methodology and tools for assessing competences; • Elaboration of assessment strategy in the PBL context.
3	**Assessment**		Current formative assessment: • Analyze the assessment methods (various types) within PBL; • Elaborate criteria for assessing the process of solving the problem and the product, in correlation with the competence to be formed.

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Annexes

1 WP4_Ped_USM_Program PBL_Curriculum_aprobat

2 WP4_Ped_UTM_Program_PBL_Curriculum_aprobat

3 WP4_Ped_USARB_Program_PBL_Curriculum_aprobat

4 WP4_Ped_SUMPh_Program_PBL_aprobat

5 WP4_Ped_CSU_Program_PBL_Curriculum_aprobat

6 WP4_Ped_ASEM_Program_PBL_Curriculum_aprobat

Tell me and I forget,
Teach me and I may remember,
Involve me and I learn.

Folklore
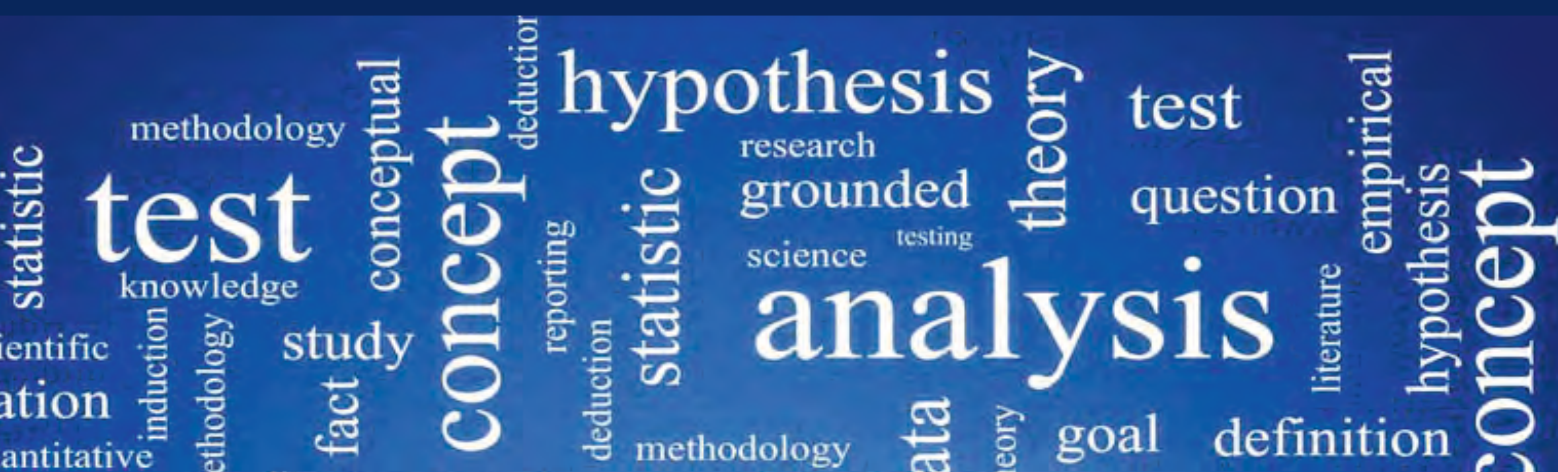
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