

PBLMD

Introducing Problem Based Learning in Moldova: Toward Enhancing Students' Competitiveness and Employability

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Erasmus+

This project has been funded with the support of the European Union

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AALBORG UNIVERSITY



ANACIP



Ministerul Educației
al Republicii Moldova



MOLDOVAN ASSOCIATION
OF PRIVATE ICT COMPANIES



UNIVERSITY OF
GLOUCESTERSHIRE



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SIEGEN



ABOUT THE PROJECT

PBLMD aims to *improve quality of higher education programmes and teaching and learning methodologies in Moldova while enhancing their relevance for the labour market and disadvantaged groups in the society*. It is a national capacity building project that focuses on curricular reform and modernization of higher education in Moldova in accordance with Bologna principles.

The project arose from the need to address the problem of students' diminishing competitiveness and decreasing employability rate in Moldova, as well as the need for implementation of initiatives for the disadvantaged students. The project was also informed by the findings of the structural Tempus-funded "Enhancing University Autonomy in Moldova" (EUniAM) project, such as:

- Need for research-based teaching
- Need for new teaching methodologies
- Need for enhanced quality of teaching
- Need for international exposure of the universities
- Need to cooperate with the industry.

PBLMD intends to address these needs by introducing new, innovative (for the context of Moldovan universities) teaching and learning methodologies and methods, such as Problem Based Learning (PBL), Enquiry Based Learning (EBL) and Simulations and re-designing six study programmes on the basis of these methods:

- BSc in Business Administration (BSc-BA, AESM)
- BSc in Information Technology (BSc-IT, TUM)
- BSc in Law (BSc-Law, MSU)
- BSc in Public Administration (BSc-EPPA, USARB)
- BSc in Entrepreneurship and Business Administration (BSc-EBA, USC)
- BA in Medicine (BA-MED, SUMPh)
- BSc in Product Design (BSc-PD, TUM/USAID).

The PBLMD project is funded with the support of the European Union under Erasmus+ programme for a period between October 15, 2015 and October 14, 2018. Aalborg University is the principal applicant and coordinator of the PBLMD project.

The total budget of the project is €1,544,760, of which €657,275 is student and staff mobility.

PROJECT PARTNERS

A consortium of 6 universities from Moldova (MD) and 4 universities from the EU, together with 5 associated partners implement the project.

MD partners:



- Academy of Economic Studies of Moldova (AESM)
- Balti State University “Alecu Russo” (USARB)
- Cahul State University “Bogdan Petriceicu Hasdeu” (USC)
- Moldova State University (MSU)
- State University of Medicine and Pharmacy “Nicolae Testemitanu” (SUMPh)
- Technical University of Moldova (TUM).

EU partners:

- Aalborg University (AAU), Denmark
- Royal Institute of Technology (KTH), Sweden
- University of Gloucestershire (UOG), the UK
- University of Siegen (USIEGEN), Germany.



Associated partners:



- Ministry of Education of Republic of Moldova (MoEdu)
- Moldovan Association of ICT Companies (ATIC)
- National Agency for Quality Assurance in Professional Education (ANACIP)
- National Council of Student Organizations of Moldova (NCSOM)
- Organization for Small and Medium Enterprises Sector Development (ODIIM).

OBJECTIVES AND KEY RESULTS

Specific objectives of PBLMD project are to:

- Change extant pedagogical culture and approaches that are teacher-centred and focused on the transmission and recall of knowledge from teacher to individual students
- Instil an alternative pedagogical culture that is student-centred
- Improve quality of teaching and learning methodologies
- Improve higher education programmes and respective curricula
- Enhance relevance of study programmes for the labour market
- Enhance relevance of study programmes for disadvantaged groups in the society
- Offer mobility opportunity for bachelor students and academic staff from Moldova.

The outputs PBLMD project are 6 redesigned - partly or fully - study programs based on Problem Based Learning (PBL) or other new methods of teaching and learning:

- BSc in Business Administration (Academy of Economic Business Studies)
- BSc in Information Technology (Technical University of Moldova)
- BSc in Law (State University of Moldova)
- BSc in Public Administration (Balti State University)
- BSc in Entrepreneurship and Business Administration (Cahul State University)
- BA in Medicine (Medical State University)
- BSc in Product Design (Technical University of Moldova/USAID).

There are also 6 outputs related to the development of student-centred, PBL, active learning pedagogical training programmes. Each MD partner will develop a 30 ECTS pedagogical training programme that will be based on student-centred, PBL and active learning philosophy, methodologies and methods.

CORE ACTIVITIES

In order to improve the quality of higher education programs and teaching and learning methodologies in Moldova, it is expected to:

- Develop, test and implement 6 study programs' curricula based on the new teaching and learning methodologies including Problem Based Learning (PBL), Enquiry based learning (EBL) and Simulations at 6 Moldovan universities
- Train academic staff and university management in PBL and EBL methodologies, learning outcomes approach and ICT based practices
- Enhance students' competences of working in and dealing with international environments via student mobility
- Ensure involvement of the sectoral, industrial and labour market stakeholders
- Exploit capacities of new methodologies related to attraction and retention of disadvantaged students from families with non-academic backgrounds
- Disseminate project results and exploitation of the new pedagogical approaches in the modernisation of further study programmes
- Ensure sustainability of the PBL methodology in the universities' strategic development and in continuous update of the staff skills
- Cooperate and coordinate project activities with extent EU/Erasmus+ projects in Moldova.

KEY SUCCESS FACTORS

A number of key success factors have been identified that are essential for the successful implementation of the PBLMD project, namely:

Vision and Drive to create a student-centred and research-based teaching and learning environment

Commitment and Willingness of rectors and their management teams of MD partners to change the context, culture and methods of teaching and learning as well as structure and content of study programmes

Commitment and Willingness of academic staff of MD partners to change the culture and methods of teaching and learning as well as structure and content of study programmes

Active Direct Participation of businesses in the development of study programmes and respective curricula, as well as in practice-based teaching and learning

Vision and Drive to become internationally competitive universities and attractive to international students and academic staff

Patience and Hard Work are virtues everyone involved in the PBLMD project cannot afford not to pursue.

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

Folklore

PROBLEM-BASED LEARNING METHODOLOGY

PBLMD offers to introduce new teaching methodologies and methods such as Problem Based Learning (PBL) and Enquiry Based Learning (EBL) at 6 MD partners.

By introducing such methodologies at 6 study programmes the project aims to contribute to a change of extant pedagogical culture and approaches that are teacher-centred and focused on the transmission and recall of knowledge from teacher to individual students.

PBL is a methodology that is student-centred learning pedagogy that encourages students to work independently and constructively using academic staff as mentors and supervisors. It is a learning philosophy according to which the learning process is organized in such a way that the students actively engage in finding problems and answers on their own.

Generically, PBL is composed of the following five elements:

- (1) Real life problems:** PBL works with real life problems to make the learning relevant
- (2) Theory-Practice integration:** PBL is solidly based on scientific methodology and scientific reflections which in interplay with the empirical facts and experiences create new knowledge and relevant solutions
- (3) Group based:** PBL works with groups of students to explore the diversity of ideas, opinions, and capabilities. The learning level is higher for a group compared to individuals and students learn team work and management
- (4) Project oriented:** PBL works with projects (mostly written) which enable them to go deeper into a specific complex problem
- (5) Independence and Engagement:** PBL encourages students to work independently and constructive using academic staff as mentors and supervisors.

Student-centred learning pedagogies such as PBL contribute substantially to the enhancement of students' competitiveness and employability. They also contribute to research, allowing academic staff to engage in research-based teaching, bringing the latest business and scientific developments directly to the students.

WORK PACKAGES

PBLMD is centred around eight work packages that define in details the actions to be undertaken and the deadlines to adhere to by the project partners and project management in order to complete the project. Each work package's specific objectives and set of activities are geared towards clear defined deliverables.

WORK PACKAGE 1: START-UP PHASE OF THE PROJECT

The objective of WP1 is to launch the project and conduct a workshop introducing the project and PBL teaching and learning methods to MD partners and key stakeholders in Moldova.

To achieve this objective, the Project Management Team and Steering Committee are formed. The project partners participate in the kick-off meeting in Moldova during which the Consortium Agreement is agreed upon and later signed, the work plan for the duration of the project is approved and the first year work plan is fine-tuned, and introductory workshop is delivered.

The following key activities are designed:

- Working meeting of the project management team
- Kick-off meeting
- Preparatory mission of the EU team
- Introductory workshop.

The following deliverables are produced:

- Fine-tuned 1st year work plan
- Detailed 3 year plan
- Consortium Agreement
- Materials for the introductory workshop
- Project booklet
- Skills for short- and long term commitment.

Key progress indicators:

- Extent to which participants increased their knowledge and could use the knowledge in their areas of work
- Number of non-academic organisations represented at the introductory workshops.

WORK PACKAGE 2: TRAINING IN PBL METHODOLOGY AND METHODS

The objective of this WP is to train the management and academic staff from MD partners in PBL methodologies and methods and to disseminate the findings (Figure 1). The former is achieved through training workshops at MD partners and by visiting EU partners.

The EU partners develop training material and travel to Moldova to conduct training workshops at MD partners. One set of workshops targets university management/administration with the aim inter alia to explore the link and fit-for-purpose between PBL and institutional structures. Another set of workshops targets academic staff as well as students to explore PBL methodologies and methods, techniques, challenges and issues.

For the purpose of study visits to EU partners 4 Study Mission Teams and 4 Study Management Teams are formed. These teams travel to EU partners to learn, evaluate and reflect on these universities' experience on PBL teaching methodologies, methods, techniques, challenges and issues.

The following key activities are designed:

- Training of MD partners' management and academic staff
- Preparatory mission of study visits to EU partners
- Study visits of Mission Teams
- Study visits of Management Teams.

The following deliverables are produced:

- Training materials
- Best practice/experience reports
- Reports on findings of PBL study programmes benchmarking exercise.
- Reports on findings of PBL pedagogical training programmes benchmarking exercise.

Key progress indicators:

- Extent to which participants increased their knowledge and could use the knowledge in their areas of work
- Number of institutional changes and new services introduced on the basis of the provided recommendations
- Number of EU best practices cases/findings identified and described.

WORK PACKAGE 3: IN-DEPTH ANALYSIS OF CONTEXT FACTORS AND CURRICULAR CONTENT

The objective of this WP is to perform in depth analysis of the identified needs for each study programme chosen by each MD partner (Figure 1). To achieve this objective, Task Force Teams analyse:

- Education/teaching structure/approaches at MD partners
- Resources and links (business/society) of each study programmes
- Content of respective study programmes
- Need for creating permanent structures to support students from families with non-academic backgrounds.

There will be staff mobility strand: EU partners travel to Moldova and conduct training of trainers, engage in pilot PBL teaching, and evaluating the progress together with academic staff and students. MD partners travel to EU partners to get greater exposure and hands-on experience in PBL-based methodology.

The following key activities are designed:

- Conduct in-depth analysis of the selected study programmes
- Engage local businesses and students in pilot study programme development
- Train university management, academic staff and students
- Refine the needs fit-for-purpose for each identified study-programs (pilot teaching)
- Staff mobility.

The following deliverables are produced:

- 7 Road Maps for change/fit for purpose
- Training of trainers
- 7 Road Maps for content change
- 6 Road Maps for change/fit for purpose and 6 Road Maps for content change related to Pedagogical Training Programmes.

Key progress indicators:

- Extent of feedback and comments to the road maps in each selected study programme/curriculum
- Number of interventions and enquiries by Task Force Teams during the process.

WORK PACKAGE 4: PBL STUDY PROGRAMME AND CURRICULA DEVELOPMENT

The objective of this WP is to develop PBL based study programmes and respective PBL based curricula (Figure 1). The Task Force Teams together with EU partners design 6 PBL based study programmes, incl., respective PBL based curricula.

The Task Force Teams travel to EU partners to work closely on the design of PBL based study programmes and curricula. PBL-based study programmes and curricula are presented to key stakeholders, including the management of MD partners for the purpose of their institutionalization at each MD partner, i.e., formal approval by university authorities, providing necessary facilities to start the enrolment and teaching.

The following key activities are designed:

- Development of new curricula and course materials
- Expert visits to Programme Country partners
- Institutionalizing newly developed study curricula.

The following deliverables are produced:

- 7 PBL based study programmes and respective PBL-based curricula
- 6 PBL based pedagogical training programmes.

Key progress indicators:

- Scope of the proposed changes in the study programmes and methodology
- Number of revised courses at the selected study programmes
- Number of revised procedures in the administration and management practices.

Number of addressed issues related to disadvantaged students integrated in the developed methodology and adapted to the new university practices.

WORK PACKAGE 5: IMPLEMENTATION OF THE STUDY PROGRAMMES AND SUSTAINABILITY ACTIONS

The objective of this WP is to ensure each newly developed PBL based study programme is effectively and efficiently conveyed to respective target audience and implemented (Figure 1). A number of means will be employed for this purpose: PBL teaching at newly developed and institutionalized PBL-based study programmes, learning reflections, and evaluations by staff and students, continuous training of trainers, and student mobility.

In semester 1 EU partners travel to Moldova and engage in co-teaching together with local staff that was trained in PBL teaching. In semester 2, the students continue the studies, focusing inter alia on semester projects, and cooperating with own counterparts from EU-partners. In semester 3 and 4 there will be student mobility strand.

The following key activities are designed:

- Announce admissions to newly-developed PBL-based study programmes
- Start PBL-based teaching and semester projects within 6 disciplines
- Evaluate teaching and lecturers (by the students)
- Develop activities within sustainability strategy
- Student mobility.

The following deliverables are produced:

- Semester 1&2 learning outcomes, student projects, exams
- Semester 3&4 student mobility, learning outcomes, student projects, exams
- Permanent support structures for monitoring and maintaining the academic excellence and efficiency.

Key progress indicators:

- Number of the primary and secondary target groups represented in the cohorts of recruited students
- Number of non-academic organisations represented at the consultation and development events
- Number of issues related the disadvantaged students integrated in the teaching practices and adapted university regulations.

Figure 1: Generic task structure per study programme

WP2. Training in PBL methodology and methods	WP 3. In-depth analysis of curricular content and context	WP 4. PBL study programme and curricula development.	WP 5. Implementation of the study programmes and sustainability actions.
<p>Objective: to train the management and academic staff from MD partners in PBL methodologies and methods and to disseminate the findings.</p> <p>Key activities:</p> <ul style="list-style-type: none"> • Train MD partners' management and academic staff • Preparatory mission of study visits to EU partners • Study visits of Mission Teams • Study visits of Management Teams <p>Deliverables:</p> <ul style="list-style-type: none"> • Training materials • Best practice/experience reports • Reports on findings of PBL study programmes benchmarking exercise 	<p>Objective: to perform in depth analysis of the identified needs for each study programme chosen by each MD partner.</p> <p>Key activities:</p> <ul style="list-style-type: none"> • In-depth analysis of the selected study programmes • Engage local businesses and students in pilot study programme development • Train university management, academic staff and students • Refine the needs fit-for-purpose for each identified study-programms (pilot teaching) • Staff mobility <p>Deliverables:</p> <ul style="list-style-type: none"> • 7 Road Maps for change/fit for purpose • Training of trainers • 7 Road Maps for content change 	<p>Objective: to develop PBL based study programmes and respective PBL based curricula.</p> <p>Key activities:</p> <ul style="list-style-type: none"> • Develop new curricula and course materials • Expert visits to Programme Country partners • Institutionalize newly developed study curricula <p>Deliverables:</p> <ul style="list-style-type: none"> • 7 PBL based study programmes and respective PBL-based curricula 	<p>Objective: to ensure each newly developed PBL based study programme is effectively and efficiently conveyed to respective target audience and implemented.</p> <p>Key activities:</p> <ul style="list-style-type: none"> • Announce admissions to newly-developed PBL-based study programmes • Start PBL-based teaching and semester projects within 6 disciplines • Evaluate teaching and lecturers (by the students) • Develop activities within sustainability strategy • Student mobility <p>Deliverables:</p> <ul style="list-style-type: none"> • Semester 1&2 learning outcomes, student projects, exams • Semester 3&4 student mobility, learning outcomes, student projects, exams • Permanent support structures for monitoring and maintaining the academic excellence and efficiency

NOTE: This figure represents the generic tasks, actions and outcomes that are to be performed by each MD partner within the selected study programme.

WORK PACKAGE 6. ENSURING QUALITY CONTROL

The objective of this WP is to ensure quality control during the entire duration of the project. The project EU Team will provide the core quality control of the development process, since it will ensure that project results are in line with EU benchmarks and standards providing continuous advice to the Consortium.

There will be internal periodical monitoring and control (peer review), as well as monitoring reporting. External evaluation will be conducted by two external experts, Prof John Reilly and Prof Olle ten Cate (Figure 2).

The following key activities are designed:

- Internal periodical monitoring and control
- Internal evaluation activities
- External evaluation
- Inter- project coaching.

The following deliverables are produced:

- Progress monitoring reports
- Final internal evaluation report
- Quality evaluation reports
- Inter project coaching
- Audit report.

Key progress indicators:

- Number and scope of the progress monitoring reports
- Extent of adjustments in implementation and management as result of the evaluation and monitoring procedures (number and importance)
- Extent of adjustments in implementation and management as result of the inter project coaching (number and importance)
- External evaluations reports : interim and final
- Number and scope of the contacts within inter-project coaching.

WORK PACKAGE 7. COMMUNICATION AND DISSEMINATION OF PROJECT RESULTS

The objective of this WP is to ensure efficient communication and dissemination of the project results. Internal communication tools are established, incl., project website and project booklet. MD partners as well as EU partners engage in communicating the updates on the project to the media, e.g., writing newspaper articles, organizing press conferences, and issuing press releases. A two day international conference on PBL methodologies and teachings is organized, at which all project partners contribute with papers.

The following key activities are designed:

- Developing project website
- Producing articles
- Organizing press conferences
- Issuing press releases
- Briefings
- Producing executive summaries
- International conference.

The following deliverables are produced:

- Internal communication tools
- Project website
- Project booklet
- Updates to the media and key stakeholders
- Dissemination at MD partners and the national level.

Key progress indicators:

- Number of appearances in the media
- Number of universities outside the consortium represented at the events
- Number of feedback inputs on the project Facebook page
- Number of information events organised at MD partners
- Number of dissemination items distributed during dissemination events
- Number of electronic newsletters produced
- Number of enquiries resulted from targeted mailings.

WORK PACKAGE 8. MANAGING THE PROJECT

The objective of WP8 is to ensure proper management of the project. The Project Coordinator has general management and coordination responsibilities of the project, as well as financial management responsibilities. The National Coordinator is responsible for managing and coordinating the project nationally. There will be organized 4 project coordination meetings.

The following key activities are designed:

- Conducting project coordination meetings
- Conducting project concluding meeting.

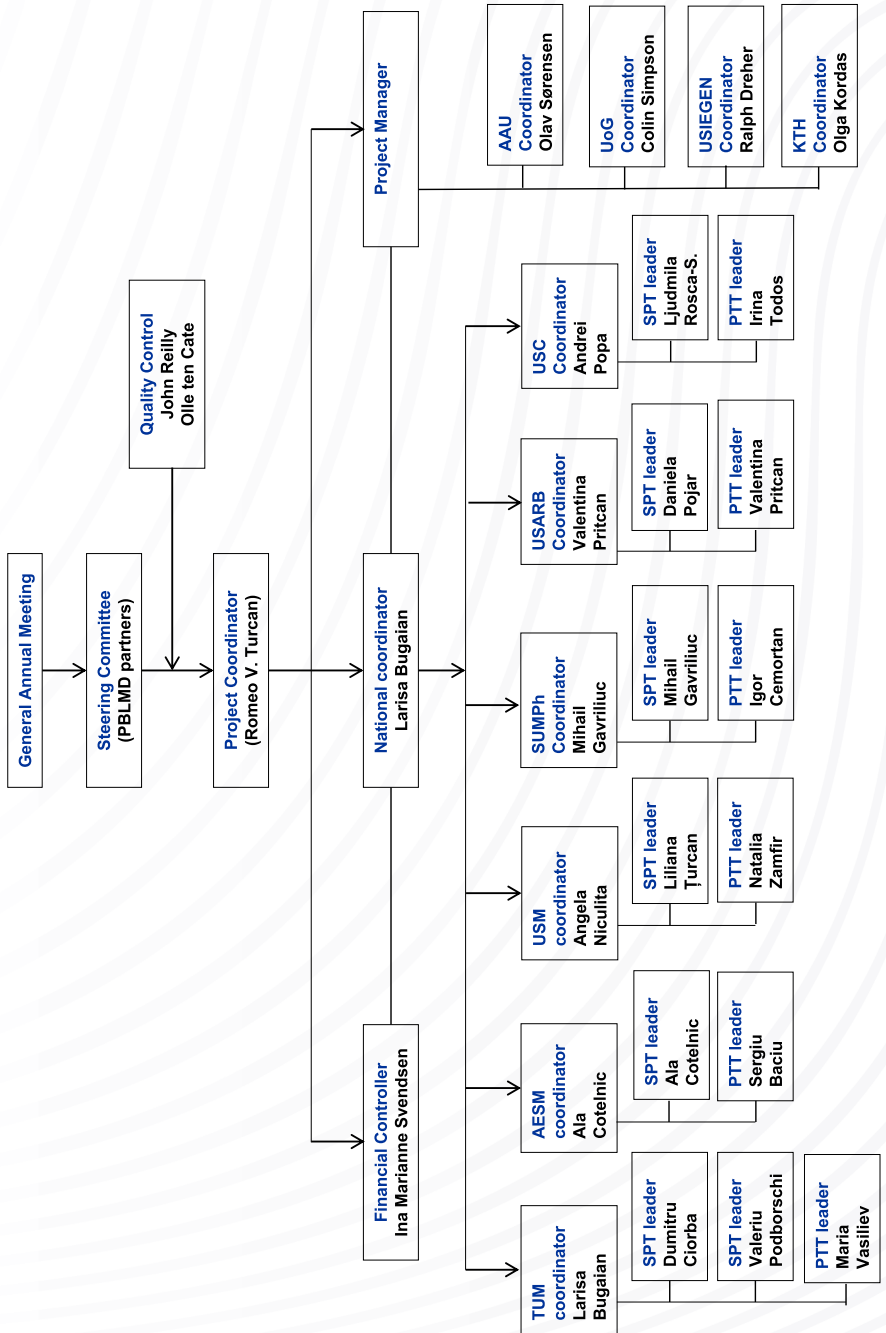
The following deliverables are produced:

- Administrative management and coordination
- Financial management
- Progress and final reports.

Key progress indicators:

- Number of coordination meetings
- Number of participants of the coordination events
- Number and scope of the delays in meeting the deadlines and agreed responsibilities.

Figure 2: Project structure



GOVERNANCE AND PROJECT MANAGEMENT

Executive Body

Romeo V. Turcan, Associate Professor, AAU, Denmark
(Project Coordinator).

Ina Marianne Svendsen, AAU, Denmark (Financial Controller).

Larisa Bugaian, Professor, TUM, Moldova (National Coordinator).

Steering Committee

Ala Cotelnic, Prime-vice rector for Studies, AESM, Moldova. Andrei Popa, rector, USC, Moldova.

Angela Niculita, vice rector, MSU, Moldova.

Colin Simpson, Senior Lecturer, UoG, UK.

Mihail Gavriiliuc, vice rector, SUMPh, Moldova.

Olav J. Sorensen, Professor, AAU, Denmark.

Olga Kordas, Senior Researcher, KTH, Sweden.

Ralph Dreher, Professor, USIEGEN, Germany.

Valentina Pritcan, vice rector, USARB, Moldova.

Viorel Bostan, director of Program in Computer Science, TUM, Moldova.

Quality auditors

John Reilly, Professor, Higher Education Consultant, University of Kent, UK.

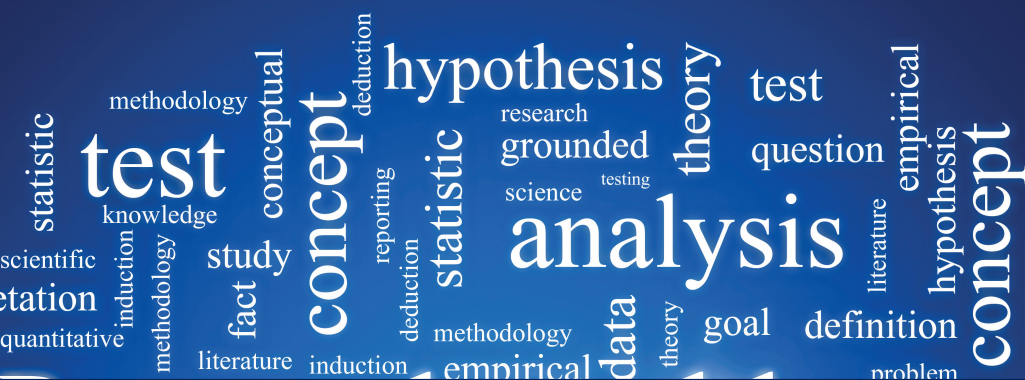
Olle ten Cate, Professor, Medical Education, Utrecht University, Netherlands.

Annual General Meeting

All co-beneficiaries and key stakeholders of the PBLMD project.

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

Folklore



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