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WHEN STUDENTS TAKE THE LEAD: ENHANCING QUALITY AND RELEVANCE OF HIGHER EDUCATION THROUGH INNOVATION IN STUDENT-CENTRED PROBLEM-BASED ACTIVE LEARNING

CONFERENCE PROCEEDINGS

PBLMD International Conference
27-28 October, 2016
Chisinau, Moldova

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Scientific Committee:
Ralph Dreher, University of Siegen
Colin Simpson, University of Gloucestershire
Olav Jull Sørensen, Aalborg University
Romeo V. Turcan, Aalborg University

Editors:
Romeo V. Turcan, Aalborg University
Larisa Bugaian, Technical University of Moldova

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Conference theme: Student-centred problem-based active learning contributes substantially to the enhancement of students' competitiveness and employability. It also contributes to research, allowing academic staff to engage in research-based teaching, bringing the latest business and scientific developments directly to the students. Student-centred problem-based active learning 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 to these problems; student- centred active learning also encourages students to pursue their own learning objectives and paths.

Keynote speakers:

Romeo V. Turcan, Associate Professor, International Business and Entrepreneurship, Aalborg University, Denmark

Balancing Teaching and Research in a PBL Context: Enhancing AAU PBL Model

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

Stimulating Students to Take the Lead: A Theoretical View and Practical Examples from Peer Teaching

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TRACK 1:

The politics of student-centred problem-based active learning study programme and curriculum change

TRACK CHAIR:
ROMEO V. TURCAN,
AALBORG UNIVERSITY

BALANCING TEACHING AND RESEARCH IN A PBL CONTEXT: ENHANCING AAU PBL MODEL

Romeo V. Turcan, Associate Professor
International Business and Entrepreneurship, Aalborg University, Denmark

Abstract: The balance between research and teaching in a PBL environment is discussed in this paper. Traditionally, research-based teaching is well embedded in PBL-based teaching and learning models or environments. In this context it is viewed as a function that supports the project work that is considered as a main function area of a PBL model. However, the research component is not well embedded in a PBL model; most of the time teaching-based research is not considered or is not part of PBL teaching and learning. Hence, this paper studies the reciprocity of research-based teaching and teaching-based research relationship in the context of PBL learning environment and discusses the implications for students, satff and university.

Keywords: Research-Based Teaching, Teaching-Based Research, Problem-Based Learning, Academic Load, Student-Centered Learning, Student empowerment, Higher education.

UNIVERSITIES IN SOCIAL ENGAGEMENT

***Olav Jull Sørensen**, Professor*
International Business Centre, Aalborg University

Abstract: Universities are increasingly challenged to redefine their role in society and the financial support to universities is increasingly related to the extent to which universities take upon them these new roles. Universities cannot just accumulate knowledge through research according to a "free research formula" and disseminate it through research publications and graduates. Universities are required to engage in a much wider sense and contribute much more directly to society. Universities have followed different ideas and routes to enhance engagement, reflecting trends in society. Some have advocated an entrepreneurial university; others have adopted a Problem Based Learning (PBL) formula and others again have internationalized to bring synergy between cultures or seen the university as part of the Triple Helix construct. The aim of this article is present the Socially Engaged University (SEU) which secures the virtues of a university (the institution of critical reflection and new knowledge within a learning perspective) with a social engagement. The university will not transform into something different but engage with others offering its competences and capabilities in a synergy with resources and capabilities of others.

Keywords: Social engagement, Socially Engaged University, Triple Helix, Problem Based Learning.

CHANGING THE HIGHER EDUCATION PARADIGM IN MOLDOVA: THE STEADY NECESSITY IN TODAY'S WORLD

Irina Dorogaia, Assoc. prof., doctor
Academy of Economic Studies, Republic of Moldova

Abstract: The Problem-Based Learning (PBL) is a conceptually new model of higher education that involves student-centered learning and actively engages students in problem solving. PBL speaks to the current world's challenges and developments and places a student in the center of learning as opposed to a teacher in the traditional higher education. Today, the young people have an access to a large bulk of information and not only can learn but also gain experience by solving different problems they encounter. This article describes the background for changing higher education paradigm in the modern world, the PBL's principles and advantages for the current education system and in the future, and the possible challenges arising from the shift from the traditional learning to PBL. In addition, the article discusses the Kurt Lewin's force field theory regarding the shift to PBL in the Moldovan universities as well as the factors that promote the changing process. In conclusion, the article suggests that the changes in the higher education paradigm would help the Moldovan universities to overcome the existing difficulties, move to the new stage of their development, and become more competitive in the international context.

Keywords: higher education, traditional model, PBL, force field, changes[1]

THE BACKGROUND FOR CHANGING THE HIGHER EDUCATION PARADIGM IN TODAY'S WORLD

The rapid development of the modern world, globalization, and the warp-speed information dissemination based on the flourishing of internet technologies as well as an increased importance of creative economy inevitably require changes in education paradigm. Today, the overarching changes cover all aspects of companies or organizations: their operating principles, their needs and the needs of clients. As a result, the education system that for a long time has been a relatively conservative (with regard to traditions, teaching methods, and approaches) also undergoes changes. Any changes in a society affect the education system since the latter provides the basis for the society's development and creates a foundation for shaping the views, attitudes, and the mind-set, and ultimately, for the well- being of the whole society.

Innovation in higher education should follow the current realities and focus on a student rather than a teacher in order to develop the potential of young people. This principle is based on the understanding that today's student is a mature person who is free-spirited and creative; a person who has his own vision and think on his own even if that differs from those around, including a teacher.

The other aspect of the modern higher education concerns the universal availability of knowledge that is related to the general access to internet. Following this, the earlier obstacles

[1] Track 2

in having relevant information have been naturally removed. A key role in this process belongs to an advanced opportunity for the high-speeded and quality communication between a teacher and a student, and among the group of students.

One of the essential factors for bringing the changes in higher education paradigm has to do with the increased competency requirements of today's employers. Often, those requirements concern the set of qualities that are impossible or very difficult to develop for a student who went through the traditional education. In particular, the lack of necessary practical skills and abilities for self-navigation in business-media where a student is coming right after the university significantly reduces his or her chances for getting a job. In other words, the changes in higher education paradigm enhance the students' competitiveness and employability.

As a result, the modern higher education aims at developing a student's ability to learn, to navigate the diverse information, and to adapt to real business problems rather than simply to know the existing theories and concepts. Therefore, a student of today has transformed from a listener into a researcher. Given the fact that learning is an ongoing process and is not limited only to the higher education, the young people should develop the skills to work independently, navigate the large bulk of information and find solutions to the existing problems.

All of these and other factors contribute to the revision of the traditional approach to the higher education.

MEETING THE CURRENT NEEDS OF THE HIGHER EDUCATION: THE PBL'S ADVANTAGES AND PRINCIPLES

PBL's advantages

There is a large variety of today's innovate teaching methods that include the distance learning, differential instruction, module-based instruction, project-based instruction and so on. The PBL becomes more popular and, as we believe, meets all of the-above-mentioned needs for creating a prototype of a new education model. The PBL is widely used by many universities around the world including the USA, Canada, Denmark, Great Britain, Australia, Germany, Sweden, and other.

This approach allows a student to "feel" the issues, which he is supposed to know, through the practical research and the search of the ways for solving a problem. As a result, a closer look into a problem helps to identify the guiding principles for research and to study the required literature and applicable information. It also frames the communication with the companies' or enterprises' staff who are more experienced in their field, helps to articulate specific questions that are related to a given research, and casts a light on the company performance in a real business-media. While studying a problem, a student uses the knowledge he gained from the different courses and fields of studies.

Following such an interdisciplinary analysis, students develop a systemic understanding of information. Also, they start to see the linkages between the gained knowledge as well as find the gaps in their own knowledge framework that require more readings from the field literature and discussions with a teacher. Thus, it encourages students to learn the subject matter they have missed or partially covered.

The PBL's definition could be summarized by the quote given by Howard Barrows

from McMaster University in Canada, who defines the PBL as "a learning method based on the principle of using problems as a starting point for the acquisition and integration of new knowledge" (Barrows and Tamblyn, 1980).

Today, a teacher's role changes significantly. Since everything in this new approach is about a student's independence and personal focus, a teacher becomes a mentor for a student, his supervisor, and adviser who provides the information as it necessary and without imposing its large amount at once if it is hard to process and keep in mind. At the same time, in PBL, the teacher is an universal expert who is fully competent not only in his own field, but also well-versed in other subjects and familiar enough with psychology in order to incentivize and encourage the students, analyze the situation and build the teams. Besides, the teacher's role is changing from the authoritative and controlling role to the supportive and consulting one and, ultimately, that improves the inter-personal relations between the teacher and the student.

Another advantage of PBL is that more often the work in a classroom is done in small teams. Being involved in a teamwork, a student learns to operate in an environment that is similar to the conditions on the ground; he performs a specific task and learns to build up not only the relations with his own group but also with future business partners.

PBL's principles

For a closer look at PBL, let us examine the principles that apply to the Danish PBL – understanding (Berthelsen et al, 1977) as well as their practice in the Moldovan universities today, and the goals of the universities for the future.

Table. *The PBL's Principles: The Current and Desirable State of the Higher Education in Moldova*

The PBL's Principle	Interpretation in the Current System	Desirable State of the System
Problem orientation	Analysis of tasks, problems or situations in which students should find "right answer" often with a given solution algorithm; in case a student faces a difficulty, a teacher explains the solution, i.e. the answer is being predetermined in advance	Students are given an open-ended problem; they are looking for the ways of tacking the issue and the right answer through an independent study, a teacher only guides and supervises the course of activities; there are a number of possible solutions, the outcome is not being predetermined in advance; there is a need for the additional knowledge during the problem solution
Interdisciplinary	Rarely used but if so, mainly during the work on a thesis; in other cases, the emphasis is made on the specific subject course included in the curriculum	Problem solution implies the use of the knowledge from the different fields, it develops the student's comprehensive knowledge framework in tackling the problem

Exemplarity	In discussing a theory, a teacher often brings examples from the real world to confirm the theory	Students not only learn the real-life situations from a teacher but also take a direct part in the situations by being personally involved in the work of enterprises or companies
Participant direction	A teacher guides explicitly by stating "the rules of the game" and taking a direct part in the students' research	A teacher plays a role of a mentor; he does not impose his own approach towards the problem solution and helps or advises in difficult situations
Group work	Is either missing or used for a short exercise, an individual-centered learning prevails to a larger degree	Used throughout the whole period of a problem solution: either during the semester or the longer period of time

Based on the data provided in the table, we can suggest that the universities in the Republic of Moldova use the traditional approach to education with, however, some elements of the interactive education. In particular, they use the team exercises, group discussion, students' presentation in front of the audience followed up by the discussions of the subject questions, hosting debates and competitions that are initiated by the teachers and students, and the organization of round tables and students' circles. At the same time, this approach significantly differs from PBL in which the understanding and learning is realized through the self-motivated attitude and the developed needs to find out the truth and solve problems.

POSSIBLE BARRIES STANDING IN THE WAY OF EDUCATIONAL CHANGES

According to the change management model (Cameron and Green, Kurt Lewin, John Kotter, Hammer and Champy, etc.), any changes meet inevitable resistance during their initiation and development stages. This is a natural tendency due to the fact that the transition to something new always involves additional costs such as time, energy, money, and efforts, and as a results, people are bound to resist. The same authors also argue that it is possible to manage changes. For example, by developing a detailed system of the reasoning for the change and incentives or the benefits of their successful implementation it is possible to align those resistant to the overall strategic direction of the organization.

In this context, the force field theory developed by Kurt Lewin is widely known. It suggests that the changes go through a number of stages: unfreezing, change or transition, and freezing, and that there are two resisting fields or factors that are driving changes (helping forces) or blocking them (hindering forces). Taking this model as a basis, we can apply the theory for the changing education paradigm in the Moldovan universities. Let us outline the force field model in the figure below:

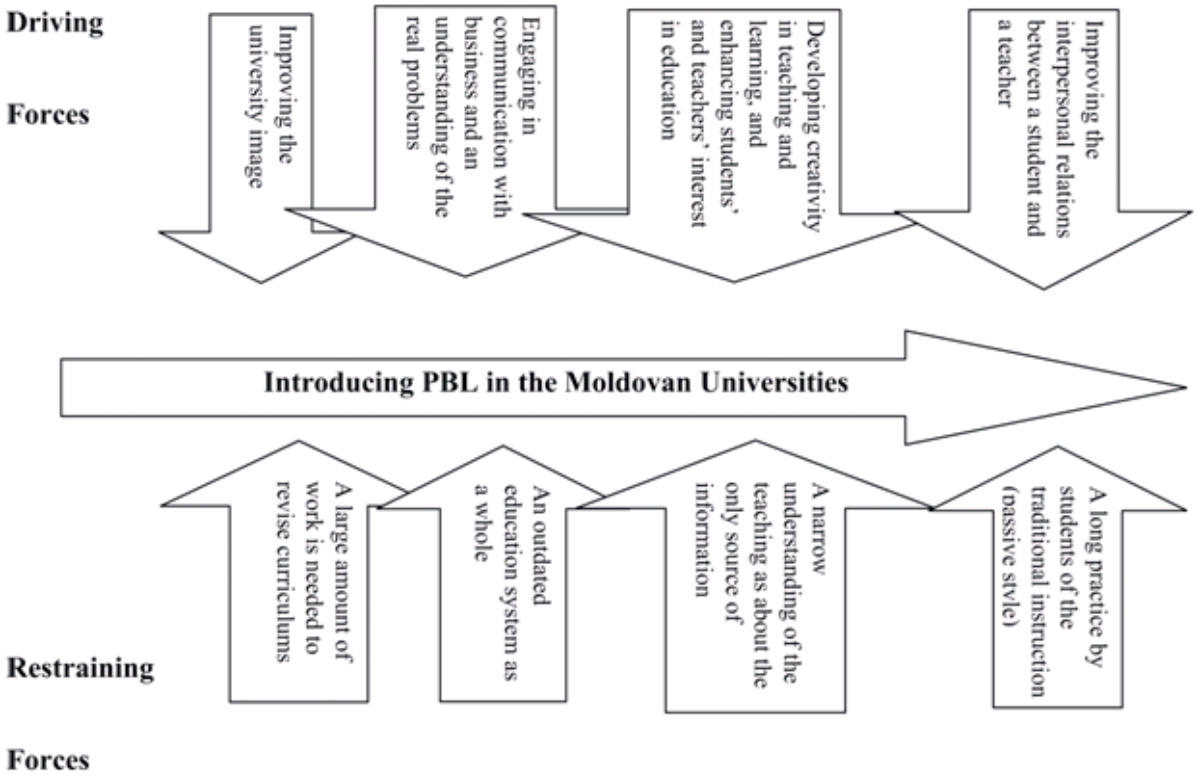

Diagram. The Force Field Model for the PBL's Introduction in the Moldovan Universities

We believe that the above diagram describes the most critical deterrents, which could be, in their turn, further elaborated. First of all, the teachers could be reluctant and resistant to implement PBL because the changes of curriculums require the additional work time and labor costs. Those changes involve the curriculums' adaptation towards existing business conditions and the search for the companies and enterprises that are willing to cooperate with the universities. Also, they include the changes of the teachers' role in the learning and instruction as well as in shifting the traditional vision.

In addition, the students could experience the difficulties in adjusting to the new education paradigm given the previous long practice of the traditional lectures and seminars that goes back to school. PBL requires the higher responsibility, personal autonomy, and independence as well as the higher level of difficulty of tasks and situations as compared to the traditional ones. At the same time, these obstacles could be overcome, to a larger extent, by an increased interest towards work, an opportunity to "feel" the real situation and to interact with the potential employers who also have a stake in instructing their future employees.

INTRODUCING PBL IN THE MOLDOVAN UNIVERSITIES

The presentation of the driving and restraining forces for the PBL's introduction in the Moldovan universities allows us to discuss the ways of fostering the driving forces and weakening the impact of the restraining forces in order to ensure the successful implementation of changes.

We believe that in order to ensure the successful implementation of this innovative approach in the Moldovan universities, first of all, it is important to explain its advantages in

detail to all stakeholders. In this context, the model of the process for leading change suggested by John Kotter (1992) and called "Kotter's 8-Step" seems the most appropriate. In particular, Kotter notes that "it is important to amplify communication of the vision [of changes] by a factor of ten from what is expected", i.e. to communicate the PBL's principles and the benefits related to their implementation everywhere and all the time. In addition, Kotter calls for "generating short-term wins" – the step that is predicated upon seeking and making visible unambiguous success as soon as possible.

To exemplify these steps, there are a number of ways to attract the considerable attention towards PBL in the Moldovan universities. They include the engagement of mass- media, the involvement of companies or enterprises to partnerships through the different organizations, the organization of tours or field trips around the companies to bring students closer to business media as well as business class closer to the national universities. Such a mutual dialog develops the students understanding of working conditions and job management.

Furthermore, to foster the development of students' creativity, teachers could come up with the interesting tasks during research. Or, they could set up a competitive environment between the students teams by organizing competitions, tests, interactive games, and specific subject research circles that would involve students from the different groups, faculties and also universities. In addition, in order to create the real conditions for those activities it is advisable to engage in them the representatives of business media.

The business class also should see many advantages of the PBL's implementation for themselves. First, during an internship at an enterprise or company, the young people present themselves and prove their skills. As a result, the companies have a chance to directly engage the most creative and pro-active students afterwards. Second, while being involved in the companies' activity, the young people bring new ideas, visions, and trends that the employees, who have worked for a long time at the same position, have not seen before. Third, by engaging the universities in the work of companies or enterprises, the latter become socially responsible and, ultimately, improve their public image.

CONCLUSION

The society's modern age requires the existence of such an education system that goes beyond the national borders and embraces the status of an international agency. Therefore, the obsolete approaches and methods make room for the new paradigms and models. Given the open access to information and substantial positive experience of the international educational institutions, the Moldovan universities have to follow the innovative approach to education that is focused on applied research. In this regard, the provides a variety of advantages that the traditional model is incapable of bringing given its limitations.

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SEEKING SOLUTIONS TO ENHANCING COMPETITIVENESS OF MOLDOVAN UNIVERSITIES: IMPLEMENTATION OF PROBLEM-BASED LEARNING

Ala Cotelnic
Academy of Economic Studies of Moldova (ASEM)

Abstract: Higher education institutions are considered to be an institutional resource absolutely indispensable for an economy in the process of building a knowledge society and achieving the objectives of redefining the foundations of competitiveness. During the recent years higher education has undergone multiple changes. The number of students worldwide is steadily decreasing due to demographic decline. Therefore, European universities, and not only, are constantly facing a fierce competition in attracting better, more talented students. Under these conditions, boundaries practically have no importance. In order to cope with competition, but also to face the changes in society, Moldovan universities should implement such learning methods that would allow the development of students' creativity, which would make the able to work in the most complex organizations. We are confident that implementing the student-cantered learning methods in the practice of higher education institutions, including problem-based learning, would allow universities to have a better connection with business environment, become competitive in the regional market and may be even the European one.

Keywords: change, student-centred learning, problem-based learning, competitiveness of universities.

Moldovan society is in a process of change in which all the economic, social, political elements have known a new dynamic trend while adapting to the current conditions. The importance of higher education is becoming more evident in modern society. Universities become the institutional resource absolutely indispensable for the Moldovan economy for building a knowledge society and achieving the objectives in redefining the foundations of competitiveness.

TRENDS IN HIGHER EDUCATION AND THE NEED FOR CHANGE

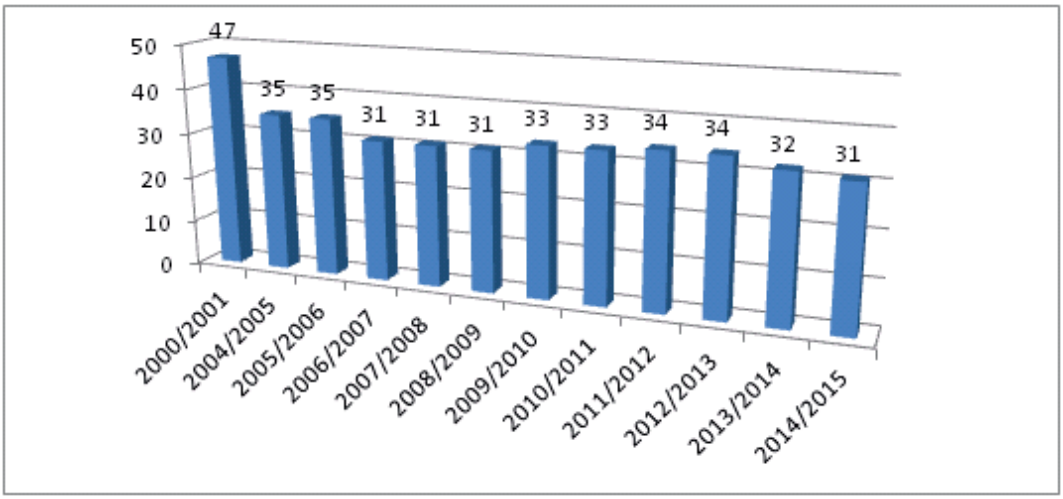
Universities are working in an environment that has changed fundamentally nowadays. Among the main challenges and trends in contemporary higher education we can mention the following:

1. Increased demand for higher education. It is a global phenomenon faced by all countries. Articles dealing with this topic (M.L. Strajeri, 2009) mention that higher education began to gain a mass character since the 40s of the XX century in the USA, changing from education of social and political elite to one accessible to all. In Europe this trend came 30 years later. Usually, the mass access to higher education is manifested by the rapid growth in the number of students, both in global terms and as a share of population. Some authors associate the mass character with some decline in quality, an increase in inequality [between types of institution], an increased diversification of the types of institutions, a decline in working conditions among academics and an explosion of admission in private universities.

As mentioned above, Europe and the whole world in general are experiencing a growing demand for education; the objective of the Europe 2020 strategy to achieve a number 40% of higher education graduates requires diversification of educational offer. It is estimated that by 2030, the number of students worldwide will reach 414 million, which means that education and training systems must become more flexible so as to meet the needs.

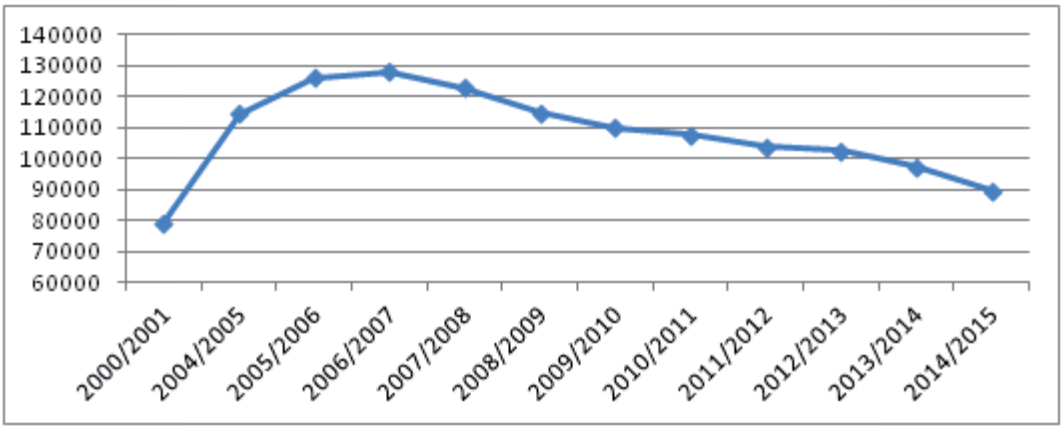
If we refer to the Republic of Moldova, we find that after a doubling of the number of students in higher education institutions (HEIs) in the 90s, in recent years, the number of students has reduced steadily. (Education 2020) (Figure 2). During the 90s the increase in the number of universities has not spared our country. However, the number has decreased and since 2004/2005 we have a stable situation in the number HEI, but anyway, very high for a small country like Moldova, with a number of students steadily decreasing. (Figure 1)

Figure 1. *Evolution of Higher Education Institutions in the Republic of Moldova (www.statistica.md)*



The number of students in the 31 higher education institutions amounted to 89 500 people at the beginning of academic year 2014-2015, or 27.2% less than in the academic year 2007-2008 (but, 7 times more than in the academic year 1990-1991). Thus, at the beginning of academic year 2014-2015, we had on average 273 students and 68 graduates to 10 thousand inhabitants, compared to 344 students and 56 graduates in the academic year 2007- 2008.

Figure 2. *Evolution of the number of students in the Republic of Moldova*



2. Internationalization of higher education. Moldova's accession to the Bologna process in 2005 made possible the mobility of students in universities in different countries. The number of students and staff involved in mobility is increasing everywhere. The rate and amount of the increase varies, but the number of mobile students reveals a clear trend – here we mention short-term mobility periods (for obtaining a number of study credits) or degree programmes, seeking for a diploma (during a study program).

However, almost free access to education in different countries is a risk to Moldovan universities, as more and more high school graduates leave to study abroad without coming back. Besides, this involves the creation of a competitive market with universities able to cope with market requirements, including the European ones. This change leads to increasing competition and internationalization is based on objectives that include interest for talent, international student recruitment, strategic partnerships, revenue generation, rankings and institutional positioning.

3. Technology and information development. This trend highlights the necessity of increasing staff training, including in terms of appropriate opportunities in order to achieve academic and administrative unity. With an estimated 90% of jobs requiring digital skills in the near future, it is thus essential that education and training systems provide individuals with the required skills [2].

4. Transfer of higher education cost to students and their families (to be covered by them)[3]. Decrease in higher education funding from the state budget is valid for all European countries. Johnstone and Bruce (2007) argue that in the context of mass character of higher education; increase the operating costs of universities at a higher inflation rate led to a decrease in capacity and availability of public authorities to fund public higher education. An alternative practiced by many countries, but also by Moldova, was the gradual introduction of co-payment mechanisms. The most common form of co-payment in the public university sector is the direct student fees (tuition or administrative). In some countries the majority of students pay fees (for example in England, Wales, the Netherlands and Spain), while others use dual models in which only part of the students have to pay (e.g. in Russia or Romania)[4]. There are also states that do not charge tuition fees in public university system (for example in Scandinavian countries, France, Turkey and Scotland).

5. Extended requests to align higher education with the labour market, including in terms of lifelong learning. Thus, the content of employment strategy of the European Union includes confirmation that, in order to continue to be competitive in the global economy and information society in training, human resources must be able to apply certain skills at a high level that can be easily adapted to meet a range of changing needs. In this context, we can say that at present the development of education appears as a requirement of social progress. In the long term, education contributes to the country's economic development, stimulate progress and raise the standard of living of the population. However, in order to answer the above mentioned, higher education must be dimensioned, rationally organized, adapted and adaptable to current and future needs of society, led with professionalism and competence.

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[2] http://ec.europa.eu/education/policy/strategic-framework/education-technology_ro.htm

[3] Cadrul strategic pentru internaționalizarea Învățământului Superior din România. Analiză și recomandări, București, 2015

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It should also be borne in mind that currently, the labour market shows a substantial imbalance between supply and demand and a shortage of skilled labour force. Analysis of employment fields and unemployment structure indicates that the education system is not sufficiently connected to labour market requirements and provides no relevant qualifications. Labour migration, combined with demographic decline, comes to challenge the myth that Moldova workforce is skilled and cheap (Education 2020) and the relatively small number of well-paid jobs discourages demand, with people preferring to stay inactive or leaving to work abroad.

So, the situation in the country, in the higher education institutions, diversity and complexity of large emerging problems in national higher education and the difficulties universities are currently facing, but also, the trends in contemporary higher education show clearly the need of numerous changes. Changes must also be made at the level of staff and the curricula.

IMPLEMENTING STUDENT-CENTRED LEARNING

Historically speaking out, most Moldovan universities focused mainly on teaching and learning. We can say that we are currently lacking universities that have undertaken visible research activities at national or international level.

The classic system, teacher-centred education, still predominates in universities. We consider it out-dated, because it was designed to integrate graduates in stable and inflexible to changes in society labour markets, especially compared with international influences. However, taking into account the speed of changes, the flexibility of the labour market, it is obvious that a student-centred education offers more benefits to the society, enables training specialists who would have the required skills. Changes from teacher-centred education to student-centred imply a cultural transformation, and, therefore, behavioural and attitudinal changes, both from students and from teachers, and the institution in general. Non- involvement of one of these factors makes it impossible to achieve this method.

In terms of student-centred education, the student is no longer perceived as a passive subject in the training process, but is considered a partner of the teacher in building knowledge and an active part in carrying instructive activities, in qualitative evaluation and in shaping their own academic route. (Todorescu LL, 2009)

The teacher is no longer providing knowledge as a product but focuses on the model "knowledge as a process", paying more attention to learning needs, motivation, counselling and student guidance. The teacher can become for example: an instructor, a guide, a tutor who stands by, a mentor, an advisor, a consultant, a knowledge provider, the person who makes things possible, a trainer, a supervisor, a teacher, a coordinator, critical researcher, broker of knowledge, model, ..., facilitator, collaborator. (Jedeskog, G., 1999).

The literature on this subject provides several definitions that reflect the subject: "Student-centred learning describes ways of thinking about learning and teaching that emphasise student responsibility for such activities as planning learning, interacting with teachers and other students, researching, and assessing learning" (Cannon, R., 2000).

Student-centred learning refers to the situation where students work both individually and in groups in order to explore issues and process knowledge actively, being active knowledge workers rather than passive knowledge recipients. (Harmon, S. W. & Hirum, A., 1996)

From the above definitions, we can draw some characteristics of student-centred learning, which can be summarized in the following items (Lea et al, 2003):

• the reliance on active rather than passive learning;

• an emphasis on deep learning and understanding;

• increased responsibility and accountability on the part of the student;

• an increased sense of autonomy in the learner;

• an interdependence between teacher and learner;

• mutual respect within the learner teacher relationship;

• a reflexive approach to the teaching and learning process on the part of both teacher and learner.

PROBLEM-BASED LEARNING – STUDENT-CENTRED LEARNING METHOD

Problem-based learning (PBL) is a student-centred learning method, an approach that challenges students to learn by engaging in a real problem. It is a format that develops simultaneously with problem-solving, strategies and disciplinary knowledge base and skills, by placing students in the active role of solving problems. Students face situations of inadequate structure that simulate the kind of problems they might face as future managers in complex organizations. The essence of problem-based learning is that this is a group approach which encourages self-directed and independent study. The approach is based on providing a problem or a situation commonly encountered in everyday life organization. Usually, students are those who choose areas or nature of their projects. They are asked to investigate the nature of the problem, analyse situations and use relevant theoretical frameworks to study possible solutions, dilemmas and conflicts. Significant emphasis is given to the concept of students‟ understanding of what they are doing, the importance of their work and how they will be evaluated. Students can help in setting some goals for which will be evaluated and how the evaluation will take place. All these characteristics of problem-based learning is focused on student motivation and contribute to their active involvement.

While the content and structure of PBL courses may differ, the general goals and learning objectives tend to be similar. PBL begins with the assumption that learning is an active, integrated, and constructive process influenced by social and contextual factors (Barrows, 1996; Gijselaers, 1996). In their review of the literature, Wilkerson and Gijselaers (1996) claim that PBL is characterized by a student-centred approach, teachers as "facilitators rather than disseminators," and open-ended problems (in PBL, these are called "ill- structured") that "serve as the initial stimulus and framework for learning".

Learning is "student-centred" because students have the freedom to study those subjects that interest them most and they determine how they want to study.

Students should identify their learning needs, help plan classes, lead class discussions, and assess their own work and their classmates‟ work (Reynolds, 1997). In addition to emphasizing learning by "doing", PBL requires students to be metacognitively aware (Gijselaers, 1996). That is, students must learn to be conscious of what information they already know about the problem, what information they need to know to solve the problem and the strategies to use to solve the problem.

CHANGING THE ROLE OF FACTORS INVOLVED IN LEARNING BY PBL

PBL implementation changes the role of different factors involved in the teaching-learning process. Thus, in the student's point of view, problem-based learning allows students to participate in their own development and

- is focused on student and is intrinsically motivating;
- encourages collaboration and cooperative learning;
- requires students to produce a product, make a presentation or action;
- allows students making gradual and continual improvement of the product, presentation, or action;
- is designed so that students are actively involved in "doing" things rather than "learning about" something;
- is a challenge, focusing on higher knowledge and skills.

From the point of view of the teacher, problem-based learning:

- has a real content and purpose;
- uses authentic assessment;
- is facilitated by the teacher, but this is more a "student guide" than a "sage on the stage";
- has explicit educational goals;
- is rooted in constructivism (a social learning theory) and gives careful consideration to learning theory;
- is designed so that the teacher becomes a student, learning from student and with them.

Finally, a partnership is created between the two factors oriented towards building a set of skills required for optimal socio-professional insertion.

Higher education institution has a particularly important role in achieving the student-centred education along with the teacher and the student, as it makes possible the optimum interaction between the two factors mentioned above.

This implies that the higher education institution must provide:

- Appropriate material base for PBL implementation: equipped classrooms, equipment, resources,
- Qualified and competent human resources to conduct effective educational process;
- Study programs: flexible, with optional courses allowing students to shape their own academic path.

PBL PROMOTES TEAMWORK AND DEVELOPS CERTAIN SKILLS

Small group's activities are dominant in case of PBL. Group work is also an essential aspect of PBL for several reasons. First, teamwork helps developing learning groups where students feel comfortable in developing new ideas, search for information, etc. It also improves communication skills and students' ability to manage group dynamics, leads to higher rates of involvement in various activities aimed at increasing the students' responsibility for personal but also for the group's learning, educates self-control and a tolerant behaviour towards the opinions of others, overcoming bias and acceptance of collective thinking. Finally, teamwork is exciting and motivating for students because they are actively involved in the work and have a high degree of responsibility for their actions against the members of the group. For these reasons, teamwork can enhance student performance. However, the groups do not always work effectively without adequate guidance. Usually, the trainer facilitates and monitors group

interactions because many students have not been taught how to work effectively in groups. Clear-formulated open issues require the skills of all group members and are essential for positive experiences of teamwork.

PBL makes a fundamental change – changing the focus from teaching to learning. The method aims to use the power of solving real problems, involving students and increasing the learning ability but also motivating them. There are several unique aspects that define the PBL approach. Learning takes place in contexts of authentic tasks and problems that are aligned with real-world concerns. In a PBL course, students and teacher become co-partners, co-evaluators, as they together design, implement and continually refine their programs. PBL approach is based on solid academic research, on learning and promotes the best practices. This approach stimulates students to take responsibility for their own learning, because there are few courses and need to know certain information determines the individual of study route. PBL is unique in that it promotes collaboration among students, focuses on developing skills in problem solving in the context of professional practice, promotes efficient motivation and self-directed learning, and aims to increase motivation for learning throughout life.

It was found that problem-based learning develops the following skills to students:

• Critical thinking – student's ability to issue clear and reasoned judgments;

• Problem solving – a component that requires the person to apply an ordered / structured process to solve problems;

• Teamwork – students' ability to work as part of a team and with others;

• Self-control – students' motivation to conduct their own learning.

BARRIERS AND RISKS IN IMPLEMENTING PBL IN HEI

It is obvious that any change meets resistance. As far as the implementation of PBL is concerned, we are aware that there will be some barriers that could slow down the implementation of this method. Among them we can mention the strong influence of educational tradition; discomfort and anxiety of change; limited incentives for change.

Thus, teachers will have to spend far more time to prepare for teamwork, they will have to overcome the knowledge limitations of the previously course taught, as finding solution to real problems requires deep knowledge of all aspects of this activity. Therefore, they will have to learn from their students, but having deeper knowledge.

Students will need more time to search for information, to process it by themselves or in groups.

There are obviously some risks:

• The risk that teachers do not accept the implementation of problem-based learning, teachers will feel a loss of control, lack necessary skills;

• The risk that students may not want to work in teams or using higher order thinking.

But progress is important not only to identify barriers and risks, but also to find ways to overcome them.

CONCLUSIONS

In the context of the above mentioned, we can conclude that problem-based education involves switching from the traditional type of teacher valued so far – a teacher who is

the author of the academic treaty, brilliant speaker oriented towards a neutral student, to a teacher who facilitates student learning, involving the student in active learning, in building their own knowledge, a teacher who is an advisor (who guides the student in finding his own knowledge path) and a moderator of knowledge (who encourages students to experience cognitively).

PBL is no longer providing ready-made knowledge by the teacher to be memorized by the student and, eventually, reproduced by him; the student is no longer treated as an object of instruction, but as the subject of it, as an active participant and responsible for building their own learning, their own knowledge.

PBL education is both a mentality and a culture within an institution of higher education. PBL is characterized by innovative teaching methods that aim to promote learning through communication with teachers and other students involved in learning, methods that consider students as active participants in their own learning.

Although there have been identified many aspects so far, on what is student-centred education in general and what is PBL education, in particular, its implementation in academia, continues to remain a challenge both for the teacher, for the student and for the university. Efficiency and effectiveness of student-centred education is possible but only if it does not remain constant but always improved in practice.

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PROBLEM BASED LEARNING AND TRADITIONAL METHODS OF MEDICAL STUDENTS' TRAINING

Angela Babuci, Mihail Gavriliuc, Igor Cemortan
Victor Vovc, Eugen Melnic, Stela Cojocaru, Silvia Stratulat
Nicolae Testemitanu State University of Medicine and Pharmacy

ABSTRACT

Introduction: The aim of our study was to perform a benchmarking of traditional teaching and PBL methods of training medical students. The main goal was to identify what are the gaps and priorities of both methods, and to analyze which of those methods is more suitable and sustainable for our curriculum.

Methods: A benchmarking of the traditional curriculum of training medical students in Nicolae Testemitanu State University of Medicine and Pharmacy and PBL curriculum used in Aalborg University was done.

Results: Traditional methods of training used for more than seventy years in our University had proved its sustainability, but nevertheless problem based learning was analyzed as a new challenge for gaining sustainable knowledge base attained by collaboration both in projects and self-directed learning, problem solving, communication and dissemination of information, developing clinical and critical thinking at interdisciplinary level and higher employment opportunities for graduates.

Keywords: curriculum, traditional methods, PBL

INTRODUCTION

Educational policy is an issue of central interest and a fundamental practice in Nicolae Testemitanu State University of Medicine and Pharmacy. Mobilisation of the university community was materialised in the Bologna process that was implemented in Moldova in 2005, with some amendments and additions to the Law on Education no. 547 dated 21 July 1995. Bologna reform was particularly promoted in Nicolae Testemitanu SUMPh through the selfless and devoted contribution of university managers, who took the role of experts and promoters of the reform. So far the university managed to change its syllabi and reform its curriculum, to introduce the European Credit Transfer System, to develop and implement the European Diploma Supplement, to structure the academic process quality management systems. One of the main areas of reforms was the organization of the internal and external quality monitoring and evaluation system through the implementation of the Quality Management System in the University.

The standards of the International Organisation for Standardisation (ISO 9001:2008) were implemented in the health education system, which requires regular re-evaluation of the training system according to national and international standards.

After Moldova's accession to the Bologna process, the SUMPh started to develop its own Quality Management System (QMS), which is designed to generate confidence in the capacity of the University to provide quality services (professional development, training, research, design, consultancy, etc.).

METHODS

A benchmarking of both traditional and PBL curricula used in training medical students in Nicolae Testemitanu State University of Medicine and Pharmacy and Aalborg University was done.

DISCUSSIONS

Nicolae Testemitanu State University of Medicine and Pharmacy is a higher education institution, which objective is to provide initial and in-service training to medical doctors and pharmacists in Moldova. During the studying process, the University gives each student the opportunity to become a professional with fundamental and professional training based on the specialisation chosen.

The Regulation on organisation of studies at Nicolae Testemitanu State University of Medicine and Pharmacy under the National Study Credit System (NSCS) that was designed as a means to promote the cooperation between the universities to facilitate the academic mobility and recognition of students' studying periods in different higher education institutions.

The forms of learning and teaching provided in the curriculum include: courses, seminars, practical activities, clinical internships, research and individual studying. All forms of studying use interactive teaching methods based on teamwork, communication with students, and their involvement in various events, presentations or demonstration experiments.

The teaching methods used both for the courses and for practical activities are modern with the use of multimedia means, power point presentations, teaching films containing tables and explanatory schemes.

The courses of the Medicine University's programme aim at familiarising students with the main applications of this professional field and their theoretical basis. Each teacher has updated teaching strategies for each course of study that are consistent with the educational programme, student requirements and predefined quality criteria.

All practical activities seek that students are able to work effectively, individually, that they can be actively integrated acquiring the minimum experience needed for each discipline.

The main learning methods practiced at disciplines during the university training are:

Traditional: enunciation; conversation; demonstration method; observation method; work with the textbook and teaching sources; exercise method; algorithmisation; teaching modelling.

Interactive methods and techniques of undergraduate training: icebreaker; group work method; multi-process assessment; contradictory sequences; brainstorming (oral); brainstorming (written); guided discussion; the "I know – I want to know – I have learned" method; docimologic test/interactive evaluation; case study; group project; presentations; reading in pairs; summary in pairs; conceptual chart, etc. Students are involved in teaching (questions, short presentations, and demonstration experiments).

Being a University with great traditions in preparing medical specialists and the only one in the Republic of Moldova it is more difficult to develop a suitable framework for a PBL curriculum, because in our University there are many departments and an impressive amount of teaching staff, over 1000, and the number of students in a group in the preclinical years is about 15. We are aware that for implementing PBL the departments have to go

under transformation and to start a totally new approach in teaching and assessment [Alexia Papageorgiou et al., 2015].

Nevertheless, our medical school was always open to challenges. An attempt to implement PBL was done at the beginning of the second millennium by the Department of physiology which was a pioneer in the development of new methods and new approaches in studying medicine. Unfortunately at that time the University curriculum was not so flexible and implementation of PBL in other disciplines failed.

Many changes have been done in the University since that time and new technologies have been implemented, but even now there is still a great challenge to develop an applicable curriculum for PBL in medicine.

Today the main responsibility of a teacher is to design student-centred methods and learning environments, with less focus on the traditional responsibility to only transmit the information. The relationship between the student and teacher is a partnership, where each takes the responsibility to achieve the learning outcomes. In those respects we are quite close to PBL methods of teaching, when the instructor is only a guide for students in learning process, and achievements of each student are on its own responsibility. Anyway working in a team and shearing knowledge and ideas would lead to a new developmental level and the final result would be the expected one.

Our teachers are specially trained in teaching and evaluation through internships in Psychopedagogy, Docimology. The internships take place through courses held at the Department of Pedagogy, internships abroad, inviting experts and partners of the education system: ProDidactica Centre, CIDMEF Evaluation Council. As a result of those internships, interactive methods were implemented (PBL at some departments, simulation and practical skills development) in the curriculum; and modern assessment methods were implemented in medical education by balancing the teaching and evaluation system. The selection of time and suitable methodology for assessing students has been optimised.

The University has developed study programmes focused on student-centred learning that provide the opportunity to choose individual educational paths by selecting optional courses within a given faculty. The education programme provides individualised learning pathways adapted to the individual skills of students that help with their professional validation enabling the professional focusing on the major areas in Medicine (medical, surgical, paraclinical/ research specialties) since when they are at the Faculty. Students have the possibility to enrol to scientific clubs organised by departments, as well they have the opportunity to choose optional disciplines according to their field of interest.

Educational programmes are renewed and are based on the ongoing dialogue with graduates, employers and other stakeholders; the curriculum is detailed, and topics and bibliography are published before the beginning of the academic year.

Courses are structured so as to combine theory and practice and to facilitate the work of future graduates in public health systems.

At the Faculty of Medicine, there has been and still is a tradition for continued concern to develop the curriculum based on the correlation between the learning outcomes and academic qualifications in the context of training students for liberal professions, regulated in general and at sector level, and for the free movement of the person and for practicing the profession.

Syllabi are relevant to the curriculum cognitively and professionally, they meet the current level of knowledge in the field. The cognitive and professional relevance of study

programmes is defined based on the development pace of knowledge and technology in the field, market demands and qualifications. Students are given the opportunity to choose courses in medical and surgical specialties or courses to develop their communication skills with patients according to students' skills and desired personal development path.

The teaching activity in the SUMPh aims at meeting the requirements to apply modern teaching/learning/assessment methods. Teachers develop a course based on the background study data, by taking into consideration the correlation with other courses in terms of content, methods etc., the direct participation in correlation analyses organised directly by the dean's office or by specialty teachers.

Nicolae Testemitanu SUMPh ensures the monitoring and measuring of educational processes through regular evaluation activities. Processes are monitored and measured to assess the performance achieved by following the teaching process of a curriculum; to strengthen internal control mechanisms, which helps to implement a strategy for ensuring and improving internal communication between the teacher and student (doctor resident/post-residency physician); to provide relevant information to identify improvements and changes in specialty training offer.

Education reform in the SUMPh implies considerable changes correlated among all its major components: institutional structures, management, curriculum, training, and last but not least, evaluation. In the SUMPh, the evaluation of education process is a complex psycho-social action based on measurement and evaluation of the results of educational/teaching activities, which allows assessing the quality of education system and aim at increasing the efficiency of education through the relation between the defined objectives and the results achieved by students in their learning process. The educational evaluation system reveals the internal development needs, while its functionality depends on the nature and quality of interactions with other education related systems: curriculum, instruction, training and professional development of teachers.

For implementing PBL there would be necessary to get through a complex process of new reforms, and those changes would not regard only the curriculum, but mainly the academic staff and selection of facilitators might take a while. Transformation of a traditional teacher into a facilitator indisputably would not be so easy, because a good facilitators must have ability to "use questions to probe the reasoning process; to guide or intervene to keep the discussion on a track; help students see connections and tie together information; lead students to examine available evidence when drawing conclusions; set high yet reasonable standards and promote the use of appropriate resources" [Barbara J. Duch and Susan E. Groh, 2001].

The most difficult issue for us is to reorganize the traditional teaching into a PBL model, because the groups of students in preclinical disciplines are large and there are no enough facilitators, but according to other Universities' experience at that stage can be involved floating facilitator selected among undergraduate students.

According to Aalborg University experience the PBL assures a sustainable knowledge base obtained by collaboration both in projects and self-directed learning, problem solving, communication and dissemination of information, developing clinical and critical thinking at interdisciplinary level and implementation of PBL facilitates the employment of graduates.

An important dimension of the study programme in Medicine relates to whether the programme has helped to student progress and is assessed in terms of students' personal development and the fairness in evaluating the student progress.

In recent years, educational methods have been promoted to increase the active involvement of students in their own training by developing the "Student's Guide" which includes the rights and duties of students, the studying guide; activity portfolio that is the main tool for assessing the activities performed by our students during the summer internships.

In clinical disciplines medical students deal with case-studies and we consider that such a model is much closer to PBL. Of cause PBL model is very suitable for many domains including medicine, for it creates opportunities of critical thinking development. A clinical approach needs special training skills that are easy developed by working in a team. The PBL give an opportunity to future specialists to get employed at a higher rate comparing with those students who were trained by traditional methods [Peter Schwartz and Stewart Mennin, 2001].

The trend for critical approach to existing forms of assessment in our University; their standardisation by docimologic principles; development of a set of standardised cases at preclinical and clinical departments; development of a set of standardised criteria for assessment of students' practical works; unification of definitions, classifications and practical skills at interdisciplinary level – centralise the whole training process and foster the study of basic disciplines through education based on practical skills and not only on theoretical ones.

Assessment of students' knowledge and practical skills seem to be confusing when using PBL, because students are studying in small groups and it is more difficult to determine the contribution and involvement of each member of the team. To make the PBL assessment valid and reliable a development of an assessment strategy with clear assessment criteria would be necessary.

One of the priority areas for strategic development of Nicolae Testemitanu SUMPh, which is in line with the policy of integration in European structures, is international cooperation, including internationalisation of the teaching and research processes. Internationalisation of the training process has become an imperative of the time, while the internationalisation of higher medical education, given the common object of study of medicine in all countries, is one of the most attractive components of this global process, which contributes substantially to the integration of the University in the European and international education systems, to developing the mobility of students, doctor residents and teachers, and to implementing new methods of training, research, diagnosis and treatment and is essential for institutional development projects.

A reliable confirmation of the above mentioned is the partnership of our University in "Introducing problem based learning in Moldova: toward enhancing students' competitiveness and employability (PBLMD) that open new possibilities for students and teaching staff in gaining new experience for applying new training methods as PBL in our country.

The PBL offers to students the opportunities to develop as self-directed life-long learners, as well they are able to define their individual needs, to search for relevant information and knowledge to solve complex problems. Students take responsibility for their knowledge and they are able to integrate the theory and practice. Another significant issue is the considerations on strategies for future learning. The learning outcomes in PBL are characterized by three main levels that are: knowledge, skills and competences suitable for future engagement as a new specialist.

The students of our University are often involved in research projects, their involvement being materialised through participation in student scientific clubs, conferences and congresses

and research awards. By engaging students in research, the Faculty creates the learning and experience environment that is stimulating them study more issues by themselves.

An important strategic area of our University is the encouragement of partnerships with international academic institutions on priority areas that should be reflected in innovative technology, outputs and services, and provision of conditions for better cooperation and increasing its international visibility by publishing scientific works in prestigious specialised ISI listed publications or in similar publications, with subsequent implementation of the results obtained in the training process.

The SUMPh applies the systematic procedural approach to curriculum monitoring by developing, implementing and improving the effectiveness of the Quality Management System to fully meet the needs of users by identifying and meeting their requirements and expectations.

CONCLUSIONS

The higher quality of the educational system is one of the priorities of Nicolae Testemitanu SUMPh. Implementation of the PBL course would not be suitable for all the disciplines, because we have to follow the established University curriculum, but some approaches to transform the existing lectures might be possible. The benefit of implementing PBL certainly facilitates employability and exceeds the used resources increasing power and international visibility of a University. The PBL offers to students the opportunities to develop as self-directed life-long learners, as well they are able to define their individual needs, and search for relevant information and knowledge to solve complex problems. The learning outcomes in PBL are characterized by three main levels such as knowledge, skills and competences suitable for employment.

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AUTHENTIC LEARNING FOR UNCERTAIN FUTURES: DESIGNING ACTIVE AND PROBLEM-BASED LEARNING TO PREPARE UNDERGRADUATES FOR EMPLOYMENT AND CITIZENSHIP

Dr Kenny Lynch, Reader in Geography
University of Gloucestershire.

Abstract: This paper is based on the author's experience of designing and researching problem-based team learning activities for more than 20 years. It draws on the evidence of research into building effective team skills (Livingstone & Lynch, 2000) and engaging students with "realworld" problems with the intention of building learner confidence, promoting the development of soft skills and appreciation of the relevance of their knowledge and skills based learning to external community based enterprises (Mason O'Conner et al, 2011; Johnson, 2013). The paper will focus on recent analysis student experiences of community based research working with a range of public, private and third sector organisations. It finds that students initially find these learning activities daunting, but with appropriate support and skills they find that they have knowledge and skills that can be useful to local organisations. This can result in powerful learning opportunities that can raise student confidence and prepare them for future life as an employee and a citizen.

Keywords: Authentic learning, teamwork, problem based learning, community based learning.

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TRACK 2:

Changing the relationship between the learner, the teacher and stakeholders

TRACK CHAIR:
OLAV JULL SØRENSEN
AALBORG UNIVERSITY

PROBLEM BASED LEARNING IN ENTREPRENEURSHIP EDUCATION: OPPORTUNITIES AND CHALLENGES

Angela Solcan
Academy of Economic Studies, Republic of Moldova

Abstract: This article aims to explore the use of Problem-based Learning (PBL) in entrepreneurship education. The Academy of Economic Studies of Moldova (ASEM) is a partner of the project "Introducing Problem Based Learning in Moldova: Toward Enhancing Students` Competitiveness and Employability" (PBLMD), funded by the European Union as a part of the Erasmus + program. One of the goals of this project is to redesign partially or even entirely the syllabus of BSc in Business Administration at ASEM, using PBL and other new student-centred teaching and learning techniques.

An analysis of international experiences allowed determining the opportunities and challenges that can be encountered by students, lecturers or university during the implementation of PBL

Keywords: Entrepreneurship education, problem-based learning, competence, teamwork, tutor.

INTRODUCTION

Entrepreneurship is the driving force of economical development due to creation of new companies and jobs, opening of new markets and developing new skills and qualifications. Entrepreneurship education has a very important role in stimulating entrepreneurial potential, it *"focuses on the development and application of an enterprising mindset and skills in the specific contexts of setting up a new venture, developing and growing an existing business, or designing an entrepreneurial organisation"* [5]

Despite the fact that many entrepreneurs assume that real-life offers the best entrepreneurship education, by following the *"school of huge shocks"*, entrepreneurs *"learn from the tough experience of creating a new company"* [6]. However, as P. Drucker has mentioned *„but everyone who can face up to decision making can learn to be an entrepreneur and to behave entrepreneurially"* [7], this ability can be learned, even more, the existence of theoretical knowledge from this field of study would later allow them to avoid some risks and achieve success.

The number of colleges and universities that offer courses related to entrepreneurship has grown from a handful 35 years ago to over 3000 today. In the midst of this expansion lies the challenge of establishing and sustaining entrepreneurship programs in universities across the globe. [8]

The increasing number of programs offered in the field of entrepreneurship education is mostly due to the huge expectance from entrepreneurship related to reducing the unemployment rate, creating new companies and reducing the bankruptcy rate.

[5] *Enterprise and entrepreneurship education:* Guidance for UK higher education providers. The Quality Assurance Agency for Higher Education 2012, p. 11. Accessed August 20, 2016, http://www.qaa.ac.uk/en/Publications/Documents/enterprise-entrepreneurship-guidance.pdf

[6] Mintzberg H. *Manager, nu MBA.* Trans. Bucureşti: Meteor Press, 2004, p. 126

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[8] Morris, Michael H.; Kuratko, Donald F.; Cornwall, Jeffrey R. *Entrepreneurship Programs and the Modern University*, UK: Edward Elgar, 2013, p. 3

According to the Recommendation of the European Parliament and of the Council of 18 December 2006, the sense of initiative and entrepreneurship are both considered key competences for lifelong learning.

Chart 1. *Essential competence sense of initiative and entrepreneurship* [9]

	Characterized
Knowledge	• ability to identify available opportunities for personal, professional and/or business activities • be aware of the ethical position of enterprises
Skills	• project management (involving, for example the ability to plan, organize, manage, lead and delegate, analyze, communicate, de-brief, evaluate and record) • effective representation and negotiation • individual and collaboratively in teams • identify one's strengths and weaknesses • risk evaluation
Attitude	• initiative, • pro-activity, • independence • innovation in personal and social life • determination to meet objectives • personal goals

Entrepreneurship does not only mean creating one's own business, but innovational activities conducted under circumstances that involve high risk or in already existing organizations as well. Notwithstanding, entrepreneurship education is mostly centered on creating and developing students` knowledge, competences and skills that would later help them to grow their ideas into businesses.

PROBLEM BASED LEARNING IN ENTREPRENEURSHIP EDUCATION

Nowadays entrepreneurial education is refocused more and more from traditional learning methods towards student-centered, active techniques. Students are encouraged to bring "new ideas in their field of study- to make the link between them, notice them in context and use them naturally".[10]

Education should be brought to life through practical experiential learning models and experience of real-world entrepreneurs. Defined entrepreneurial learning outcomes for all educators are needed, to introduce effective entrepreneurial learning methodologies into the classroom.[11]

One of the active learning methods used on a larger scale in higher education is Problem-based Learning (PBL). This model allows students to solve problems that can arise during their

[9] Recommendation of the European Parliament and of the council of 18 December 2006 on key competences for lifelong learning (2006/962/ec), annex. key competences for lifelong learning — a European reference framework, art.7.

[10] Mintzberg H. Manager, nu MBA. Trans. București: Meteor Press, 2004, p. 181.

[11] ENTREPRENEURSHIP 2020 - ACTION PLAN. Reigniting the entrepreneurial spirit in Europe . Accessed August 28, 2016, http://eur-lex.europa.eu/legal-content/en/txt/html/?uri=celex:52012dc0795&

real-life entrepreneurial activity and to reflect through collaboration over the obtained experience.

Problem-based Learning (PBL) is a group based learning approach, in which the learners engage themselves in research and problem solving activities in order to gain a deeper understanding of theoretical concepts and the practical relevance of the problem they want to solve.[12]

Barrows and Tamblyn (1980) summarized the PBL learning process as follow:

1. The problem is first encountered in the learning sequence before any preparation or study has occurred.

2. The problem is presented to the student in the same way as in real life.

3. The student works with the problem that allows him/her to reason and apply knowledge to be challenged and evaluated as appropriate to his/her level of learning.

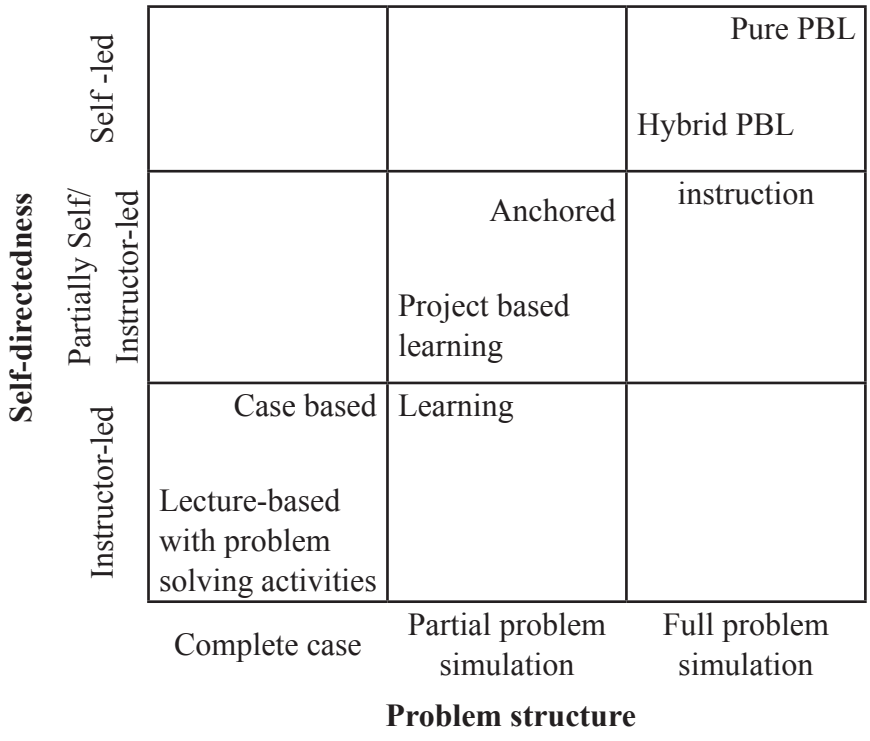
4. Learning issues are identified in the process of working with the problem. These are used as a guide to individual study.

5. Skill and knowledge learned by this study are applied to the original problem to evaluate the effectiveness of learning and to reinforce learning.

6. The learning that has occurred in working with the problem and in individualized study is summarized and integrated into the student's existing knowledge and skill.[13]

Considering two dimensions that are self-directedness and problem structure Barrows (1986) has proposed six representative PBL: Pure PBL, Hybrid PBL, Anchored instruction, Project based learning, Case based Learning, Lecture-based with problem solving activities.

Figure 1. *Six representative PBL models in Barrows' PBL taxonomy* [14]



[12] Mühlfelder M., Konermann T., Borchard L.-M.,"Design, Implementation, and Evaluation of a Tutor Training for Problem Based Learning in Undergraduate Psychology Courses". Jurnal of Problem Based Learning in Higher Education, VOL. 3, No. 2, 2015 – Page 37-61 (p. 38), Accessed August 24, 2016, https://journals.aau.dk/index.php/pbl/article/view/1195/985

[13] Uden L., Beamont C. Technology and Problem-based Learning. Information Science Publishing, 2006, p.33

[14] Cho, Young Hoan (et al.) *Authentic Problem Solving and Learning in the 21st Century: Perspectives from Singapore and Beyond,* 2015 - 368 pages, p. 82

PBL is an efficient pattern for preparing students for entrepreneurship, because in the process of solving they can develop their basic entrepreneurship competences. *"The acquisition of critical entrepreneurial knowledge and relevant skills through the PBL entrepreneurship education should prepare the students to become effective entrepreneurs"*.[15]

A synthesis of the main competences that are developed while using PBL in entrepreneurial education (Chart 2).

Chart 2. *Entrepreneurial competences and PBL*

Entrepreneurial competences	PBL Competences
Knowledge about/for entrepreneurship	++
Problem solving	+++
Collaboration in teams	+++
Uphold the values, ethics and professionalism	++
Communication	++
Risk evaluation	++
Determination to meet objectives	+++

Especially, PBL enhances the development of such competences like: problem solving and team work, which teaches students how to collaborate with others simulating a "real entrepreneurial" world.

The experience of European and American universities shows that it is welcomed and even more prolific to create groups of students from different specialities. For example, in case of MIT*„the integration of engineering students with management students was a clear success in the classroom and has led to countless formations and launches of new innovation-driven companies over the years"* [16].

Application of PBL in entrepreneurial education offers students numerous opportunities like:

- gaining knowledge and practical skills in entrepreneurial activity,
- forming teamwork abilities,
- developing spoken and written communication skills,
- developing abilities for solving problems,
- developing independence from external sources of information and expert advice,
- collaboration with the business community in order to solve their real problems,
- collaboration between students and teachers,
- a higher probability of being hired or creating their own company as a result of a better preparation.

In entrepreneurial education PBL can be successfully applied in elaboration of common projects: developing business models and preparing business plans.

[15] Wee, K.N. L. 2004. "A problem-based learning approach in entrepreneurship education: promoting authentic entrepreneurial learning". *International Journal of Technology Management* 28, 7/8.

[16] Edward B. Roberts, Fiona Murray, and J. Daniel Kim *Entrepreneurship and Innovation at MIT Continuing Global Growth and Impact*, 2015, p. 25.

ENTREPRENEURIAL EDUCATION AT ASEM

The Academy of Economic Studies of Moldova (ASEM) is one of the first higher educational institutions from the Republic of Moldova to introduce the Entrepreneurship course in 1998. The primary goal was to give theoretical knowledge and develop entrepreneurial abilities, as well as consolidation of entrepreneurial sense.

From the very beginning the course was held for students of only two specialties: Business and Administration and Marketing and Logistics. Subsequently it was included as an optional course in the study schedule at other specialties during the first stage, Bachelors: Cybernetics and Economical Informatics, Informational Technology, Informatics, Accounting, Tourism, Technology and Management of Public Alimentation, Commodities and Commerce.

The Entrepreneurship course includes the following subjects:

- Importance of entrepreneurship
- The entrepreneur – a business promoter
- Discovering and creating opportunities
- Elaboration of business model Canvas/business plan
- Start-up and Franchises
- Buying a business
- Finding Money to Start and Financial projection
- Entrepreneurial management.

During the second stage, Master's, the course of Business plan elaboration is proposed for students from Business Administration and Informational Management programs. By working in groups of 3-4 persons, they elaborate a business plan, that they subsequently present the plan in front of their colleagues and the teacher.

During the entrepreneurship education course there are applied a few active teaching methods as: project elaboration, case studies, simulations, meetings with successful entrepreneurs, interviews and so on. However, mostly it is still focused on teaching.

As for now, entrepreneurship education at ASEM includes a series of extra-curricular activities:

- "The Start-up Academy"- meetings with successful entrepreneurs that share their experiences with the students;
- The debate club BIZZClub;
- Contests among students "Today-student, tomorrow-entrepreneur" and "Start-up@ Business Model";
- Start-up in the business incubator ASEM and so on;

SUPPORT PROBLEM-BASED LEARNING PROGRAM

PBL is a new entrepreneurship education concept in the Republic of Moldova, thus the implementation would assume changing both the structure and curriculum content of Entrepreneurship. In regard to the structure, it must be designed in such a way that the modules would include the key competences of entrepreneurship, meanwhile being flexible and updated periodically.

Implementing PBL will demand changing the teaching methodology because the

students are not given anymore the right answer that they have to remember. Contrariwise they are stimulated to find solutions from real-life experience.

Similarly, PBL changes the professor's role as well, becoming a tutor and facilitator. This role is an innovation for the most teachers, they will not have to focus on transmitting knowledge about and for entrepreneurship, but to be an incentive and motivate the students to learn and develop new competences by themselves. *Much of the enthusiasm for the problem-based approach to learning comes from instructors who feel revitalized by the creative energy it releases.*[17] (White, 1995)

Teachers must be instructed regarding the PBL process and their role, because a guidance failure would lead to a complete lack of interest from students in application of PBL. To exemplify, Aalborg University, Denmark organizes courses for tutors as a part of the program "TtT" (Train the tutor).

The main objectives have been defined as follows.[18]

1. Develop meta cognitive skills for facilitating collaborative learning processes based on PBL principles.

2. Learn facilitator skills for structuring the tutorial session (visualizing, summarizing, time keeping).

3. Learn how to use appropriate tutor skills in order to scaffold and stimulate the learning process in a tutorial group (elaborating, directing, integrating, and constructively interacting with each other).

A decisive factor to a successful implementation of PBL is selecting the right problem. "Problem" in this context relates to a puzzle, a specific question that arises curiosity and needs investigation. It must be related to real-life, to encourage autonomous study, to correspond to overall purposes of the course and develop specific entrepreneurship education competences. Otherwise it could demotivate the student to learn.

In entrepreneurial education the most commonly used problems are related to:

• Making decisions- the student should chose a solution from numerous alternatives;

• Problem solving- the student identifies the error and an optimal solution;

• Strategic performance- a problem of high complexity that needs a broad perspective and more approaches to solve a global problem;

• Projecting a product, affair or process in a company.

International practice of PBL shows that is welcomed the application of multidisciplinary problems, which means that teachers from different departments collaborate actively.

Entrepreneurship professors do not always have entrepreneurship experience, but implementation of PBL in entrepreneurial education is strongly linked to business practice. Thus, a long term relationship with stakeholders is vital. All case studies show the importance of collaborating with external stakeholders in entrepreneurship education. Strong networks with external partners may indeed be a key success factor for entrepreneurship education, i.e. for changing mindsets, improving skills and also creating ventures (June 2015 I 67). [19]

[17] White, H. (1995). *"Creating problems' for PBL"*. Accessed August 24, 2016, http://www.udel.edu/pbl/cte/jan95-chem.html

[18] Mühlfelder M., Konermann T., Borchard L.-M.,"Design, Implementation, and Evaluation of a Tutor Training for Problem Based Learning in Undergraduate Psychology Courses". *Jurnal of Problem Based Learning in Higher Education,* VOL. 3, No. 2, 2015 – Page 37-61 (p. 41) Accessed August 24, 2016, http://dx.doi.org/10.5278/ojs.jpblhe.v0i0.1195

[19] Lilischkis Stefan (empirica, co-ordinator), *Supporting the Entrepreneurial Potential of Higher Education Final Report.* Version 1.1 June 2015. Accessed August 25, 2016, http://www.minedu.fi/export/sites/default/OPM/Tapahtumakalenteri/2015/10/Liitteet_06102015/sepHE_Final-Report_2015-06-30_v1.1.pdf

At the moment, this resource is poorly valued by educational institutions. There are partnership agreements with some economical agents, however the collaboration is within the boundaries of organizing internships for students and teachers or conducting excursions and visits at the company. It is necessary to revise and vitalize these collaborations, including with organizations and business associations: The Organization for Development of Small and Medium-sized Enterprises in Moldova, Chamber of Commerce and Industry etc.

In the spring of 2016 was constituted Alumni Association ASEM, it is welcomed and necessary to involve the members in entrepreneurial education. For example, in the American universities Alumni Association members actively assist in the entrepreneurial education of the new generation of students through conducting classes, consulting, even funding students` business projects. Many entrepreneurs, ASEM graduates, are willing and enthusiastic to share their entrepreneurial experience with the students. Also, they can be in important source of experience and expertise for finding or formulating problems used in PBL.

Similarly, teachers` internships in organizations and companies can be used for designing the problems. At ASEM, for a few years teachers have the possibility to do an individual internship in order to upgrade and deepen their knowledge and abilities from an economic-managerial perspective and gain advanced experience in a real life environment etc.

Collaboration with stakeholders, teachers' internships in organizations or companies, inter-department collaborations would allow creation of "PBL problems banks" that would include: case studies, examples of problems, simulations etc., that can later be used during lessons.

Another important aspect of PBL is adapting the students' perception regarding their educational process. Nowadays, as a result of the applied learning technique, students are used to structured teaching like in textbooks, thus being passive listeners. In case of PBL, they should be actively involved in the process of education and become responsible for it.

The new experience will require more time to get prepared, as well as competences regarding the method to research and apply relevant knowledge. It is important that at the initial stage they will be guided by a teacher/tutor while searching for information, additionally, they must be familiarized with the problem based learning method. In universities were this method is successfully applied, a PBL guide was elaborated with the best practices that can be accessed by both students and professors (Aalborg University, University College Dublin, Stanford University etc.).

PBL directs students to use the university library resources to a great extent. The library's role is not anymore the traditional one to supply with books and other informational sources, including online databases. Libraries in partnership with teachers contribute to the development of students` key skills. This way, when they "need information, they know how to find the relevant information for solving a problems, to identify , to evaluate, to organize and to use the data in a efficient way to solve the problems that they stumble upon" [20].

PBL implementation will require a new spatial planning and classroom management at ASEM. "In the existing classrooms of business schools, students are placed in a way that would allow them to see clearly the teacher. This scheme can be suitable for transmitting information from the teacher's place, but does not facilitate collaboration between the students" [21]. The tables will be arranged in a way that would favor and comfort organizing discussions in small groups, also it will be necessary to give enough space for each group of students to work together.

[20] *Învăţământul centrat pe student ghid pentru studenţi, cadre didactice şi instituţii de invăţământ superior*, trans. 2010, p. 30, Accessed August 24, 2016,
http://www.anosr.ro/wp-content/uploads/2012/07/2012-Toolkit-ICS-cadre-didactice1.pdf

[21] Mintzberg H. *Manager, nu MBA*. Trans. Bucureşti: Meteor Press, 2004, p. 252

CONCLUSION

PBL offers numerous opportunities for entrepreneurship education, the main reason is because it motivates students to learn and develop generic entrepreneurial competences as: initiation, risk assumption, confidence, creativity, teamwork and problem solving. Meanwhile, the implementation of PBL involves challenges for students, teachers, university and it requires time, endeavors and resources. The success of PBL depends mostly on the right guiding technique applied by teachers/mentors, students' desire to be actively involved in the process of education, the support given by the top managers of our university and a close collaboration with the stakeholders, including European partner universities in the project «Introducing Problem Based Learning in Moldova: Toward Enhancing Students' Competitiveness and Employability» (PBLMD) that will assist us in application of PBL.

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7. *ENTREPRENEURSHIP 2020 - ACTION PLAN. Reigniting the entrepreneurial spirit in Europe.* Accessed August 28, 2016, http://eur-lex.europa.eu/legal-content/en/txt/html/?uri =celex:52012dc0795&

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EDUCATION BASED ON MEDICAL ISSUES (PROBLEM BASED LEARNING IN MEDICINE): DO WE CANCEL, OVERTURN OR EVOLVE THE EXISTENT EDUCATIONAL PROCESS?

Mihail Gavriliuc, Eugen Melnic, Victor Vovc, Igor Cemortan, Angela Babuci
Nicolae Testemitanu State University of Medicine and Pharmacy

Abstract: Questions asked during the lectures of the students, small conversations and incursions during the conferences with teachers of The Sate University of Medicine and Pharmacy "Nicolae Testemitanu", a well as conversations held with doctors beginners and with those with experience demonstrated that 95% do not know the principles of problem based learning, while solving situations related to diagnosis establishment and treatment of the patients they do use this method unconsciously. We have analysed the educational programs and the current curriculum for the training of the doctors regarding the Medicine Specialties, Public Medicine, Stomatology and Pharmacy at the State University of Medicine and Pharmacy "Nicolae Testemitanu" from the Republic of Moldova, vis-à-vis the history of foundation and development of the university, quantitative results (numbers of graduates) and qualitative (number of graduates employed in medical activities in the country and abroad, implied in the research sector). Our analysis activity of materials at hand revealed the fact, that although the traditional programs and methods had proven their durability and efficiency from 1945 till now, covering completely the training necessities of the doctors and the university's lecturers in the Republic of Moldova, nowadays we are in need of a reform in order to break this educational deadlock, to contribute to a more intense exploitation of both students' and teachers staff's intellectual potential. The problem based learning method seems to be an effective solution for the actual challenge of the new context of superior school of medicine's existence, when the educational offer should make a 20 years step forward anticipating strategically the necessities of the society that is in a transformation process. The auto appreciation made by the authors of this article confirms the working hypothesis that the professional, didactical and investigation competences of a doctor can be obtained, sustained and developed by the Problem based learning. Most of them keep their social and cognitive dimensions. As a reference to them: solving complicated cases, legal and social activity aspects, communication abilities, permanent professional development.

Keywords: Problem-based learning, medical education, educational programmes, curriculum development

INTRODUCTION

The introduction of the study in higer medical educational institution based on the problem, could solve the necesity of skills improvement of the doctors, that right after graduation, must demonstrate high professional skills, and especially when it comes to social and cognitive demention.

Today, the medical education is realized according to two basic methods: the tradtional method and the study based on problem [1, 2]. The study based on problem is considered,

by the majority of experts in this field as one of most efficient, when it comes to training modern professionals in the medical field. Although, introducing such a method of study in the activity of a higher education institution, needs considerable efforts, especially when it comes to human resourses. For example, the contact between the student and the trainer, in the study based on problem has to be 3-4 times greater, when it comes to timing, compared to traditional study.

As a result, the study based on problem has to face first of all the economical impediment, especially when the number of students for one speciality exceeds the number of 100 [3]. Facing the situation, when the financial resourses of SUMP ”Nicolae Testemitanu” are short, introducing a new method of study, that implies suplimentary financial expenses, will confront managerial obstacles on all levels: faculty, rectorat, Ministry of Education, Ministry of Health, Government, Parliament, fact that was demonstrated from the experience of many other countries [4, 5, 6, 7, 8, 9].

From specialized literature sources however, it was observed that in the universities where this method of study was introduced, both students and the lectors became faithfull followers of this method, trying to provide evidence about the benefit, that will sooner or later have the entire society and not only the University community [13, 14, 15, 16]. There are known already positive instant effects, at the level of university cycle (students) [13, 11, 12], as well as postgraduate residents [16]. It is not possible yet to extrapolate the competences of the resident doctor, when it comes to the capacity of continuous medical education of the practicing doctor, based outside of the universitar community [17]. With the taking over of the model of education based on problem at our University, we think that it would be necessary to examinate and elaborate monitorization indicators of the competence and performances both at the stage of University cycle, and for the period of minimum 20 years after graduation, as it has been proposed by a number of researchers in the domain [18, 19, 20].

METHODS

In this work we intend to analyze the traditional method of the medical treatment, utilized since 1945 (founding year) at the SUMP “Nicolae Testemitanu” vis-à-vis of the educational possibilities offered by the PBL, used for a long time by other universities in the hole world. That’s why we accepted Maudsley’s definition about the problem based learning, both teaching-learning and philosophy-methodology study methods.

RESULTS

The medical education of the specialists of the SUMP “Nicolae Testemitanu” is based on the study programs and the curriculum taken from the State Institutes of Medicine Nr.1 and Nr.2 and Pediatry from St. Petersburg (Leningrad about that time), transferred from Kislovodsk to Chisinau by the end of World War II. In this way the superior medical education of Republic of Moldova was founded, that gave us the possibility to train doctors of high qualification and on the other hand it laid the foundations of the research and the native medicine scientific realizations development.

The duration of the superior medical education in Medicine and Public Health specialty in Republic of Moldova takes 6 years and in Stomatology and Pharmacy 5 years. The essential

subjects at the SUMP "Nicolae Testemitanu" are studied in the course of the first 3 years, state exams for essential subjects don't exist at this moment, but there are promotion exams taken by the students on the respective subjects at the end of each semester. The preclinical subjects with interdisciplinary character are: microscopical anatomy, biochemistry, physiology, human genetics, medical terminology, philosophy, bioethics and communication skills. The students attend at patients' consultations.

The next three years the medical students consecrate themselves to clinical subjects study that are regularly held in modules (cycles) with a duration of 2-4 weeks. At the lectures and practical lessons within 3 years they get acquainted with all medical subjects. The clinical subjects besides surgery and internal diseases include: psychiatry, neurology, otolaryngology, ophthalmology, dermatology, infectious diseases, gynecology, pediatry, medical genetics, biometrics and social medicine that are taught in Germany in the course of the 4th year and the first half of the 5 th year of studies. In the second half of the 4 th year of studies the students start their investigation activity which ends with the maintaining of the license thesis by the end of the 6 th year of studies. The last year of superior medical studies by the principle divides in a practical semester and a usual one, which doesn't differ to the previous clinical years. After the 6 th year of studies, the students go in for the state examinations, which are divided in practical (clinical) part and theoretical part. The post-university medical studies can be realized among the residency program for a term of 4-5 years.

INTERPRETATION

Available sources of scientific literature , based on an objective analysis of performance indexes of the activity of the Medical faculties, claim that the study based on problem, develops at students, when compared to the traditional method, skills of a superior quality [19, 20, 21, 22]. The meta-analyzes carried out by Dochy et al. [23] showed that problem-based education has no powerful action on the amount of accumulated knowledge, but exert a strong positive effect on the ability of knowledge application in practice. At the same time, the majority of studies and analysis of a large scale are based on the quality of the in fact gained knowledges, but neglects other aspects of the phisician„s competence [9, 14, 43]. Above the necesity to change the education stereotype, introducing of study based on problem in a medical institution, that till not so long ago used the traditional classic method, confronts an active resistance, from a large part of the professional didactic staff [24, 25, 26, 27, 28].

Due to this aspect, the authors of the present work, after discussion, have come to conclusion, that in order to introduce the method of education based on problem in SUMP "Nicolae Testemitanu" is necessary to draw up a special program, that step by step, in an evolutionary form (but not a revolutionary one) will implement the method at the beginning as an interdisciplinary course, during the second half-year of the third year of studies (at the end of the Preclinical disciplines), then at the public medical speciality, where the number of students does not exceed 60 people and only once, by this way, there will be identified the strong and weak points, this method will be implemented completely at the level of University.

And not the least will be taken into consideration the financial-economic aspect of the implementation process and mentainance of this new educational method.

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HOW PBL CAN INCREASE THE EFFICIENCY OF EDUCATIONAL PROCESS AT LAW SCHOOL?

Liliana Turcan, PhD in Law; Natalia Zam ir, PhD in Law; Mihaela Vidaicu, PhD in Law
Moldova State University

Abstract: This articles aims at providing the approach towards problem based learning at Moldova law schools. Taking into account that current law schools' curriculum contains several elements of problem based learning, authors of this article provided examples of specific interventions used in teaching several braches of law. In particular, authors described the use of individual research projects for administrative law, a group project for constitutional law and solving a practical issue for environmental law.

Authors emphasized the need for problem based approach for other branches of law as well taking into account the specifics of legal studies and the need for including skills based courses in the university curriculum. Moreover, authors came up with a list of recommendations to facilitate introducing of the problem based learning at law schools.

Keywords: law school, students' learning, individual research project, braches of law, administrative law, constitutional law, environmental law.

CONTEXT

Law is one of the most prestigious professions in the Republic of Moldova. However, the number of students enrolled is decreasing in the last years. This phenomenon is determined by several objective factors such as creation of private institutions which provide legal education and increased number of young people which choose to go abroad for studies (Romania, Russia, etc.). However, the biggest problem is the lack of jobs for young people. Unemployment rate among youth is 2-3 times bigger than the average rate on the national level. Reorientation of the social priorities is determined by the occurrence of the new notion of „post-industrial society" which refers to the citizens' ability to be active, independent, to take decisions and to be flexible to the modern life conditions.[22] On the other hand, the study conducted by IDIS Viitorul in 2014 shows that in 2014-2015 Moldova was placed 84 in the international competitiveness ranking and 82 in the raking on efficiency of labor market among 144 countries.[23]

Currently the law school curriculum does not meet the needs of the legal profession as it contains a lot of disciplines which are additional burden for students. The majority of law professors still use traditional teaching methods with focus on knowledge transfer with poor engagement of students. Very few professors apply interactive teaching methods and engage students in practical exercises. Thus, after graduation students still lack practical skills and are not able to solve practical issues as the skills gained at the law school does not suffice to start a professional career. In these circumstances it is mandatory to change the attitude of law professors towards legal education process and to encourage the use of new teaching and learning tools. One way to do that is to integrate PBL in the university curriculum.

[22] M.A.Malîşeva, Современные технологии обучения и их роль в образовательном процессе, Учебно-методическое пособие, Санкт-Петербург, 2011, стр.12.

[23] http://www.business.viitorul.org/audiere/n-ce-msur-sistemul-educaional-din-republica-moldova-satisface-nevoile-de-for-de-munc-ale-companiilor-4, vizitat pe data 25.08.2016.

In fact, PBL is not only a teaching method or theory but it represents a new philosophy, a new approach to the teaching-learning process, a new approach towards the relationship between the student and the professors. This model is successfully applied for many years at the University of Aalborg and at other European universities, being considered efficient due to the high level of graduates' employment. Today this model is of interest of many scholars and students all over the world.

The opinions regarding the definition of problem-based learning are different. Some scholars consider PBL as a basic didactic principle which shape the existence of other principle (Cerghit I., 1980). Other scholars define problem-based learning as a teaching method. W. Okon, a supporter of problem-based learning says „this is a new theory of learning".[24] According to Coombs and Elden, PBL is a learner-centered (versus content- or instructor-centered) method that challenges the learners to take a progressively increasing responsibility for their own education and is therefore consistent with the constructivist perspective.[25]

Problem based learning with a central focus on students' learning may contribute to change of the traditional approach of educational process at the law schools because it motivate students, facilitates their active involvement in the educational process. Teaching and learning focused on students is provided also by the p.1.3 of the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG) approved in Yerevan on May 14-15, 2015.[26] Also, this is a basic principle provided by the art.7 of the Education Code of Moldova effective of as 17.07.2014.[27]

The PBL model encourages students to identify or create a problem and to research and investigate in order to solve it. PBL has the following advantages:

- It creates an active environment for group work;
- It facilitates the confrontation of different positions;
- It encourages the development of intellectual skills;
- It encourages the professional thinking;
- It facilitates the presentation of the students' own idea;
- It develops critical thinking.

Integration of PBL in the university curriculum is a long term process. In order to facilitate this process we have to find a way to persuade law professors to engage in this process and to determine the particularities of a PBL based curriculum.

HOW DO WE PERSUADE LAW PROFESSORS TO USE PBL?

Law professors' reluctance is one of the most common obstacles in the implementation of new educational models and strategies. That is why many universities decided to change educational policies and curriculum step by step as this process implies also additional training program for the teaching staff and appropriate environment for PBL use. In order to change teaching staff attitudes and approaches some universities used the following methods:

[24] A se vedea: Nina Socoliuc, Victoria Cojocaru. Formarea competențelor pedagogice pentru cadrele didactice din învățământul universitar. Chișinău: Cartea Moldovei, 2007 (Tipogr."Reclama") – 160 p.

[25] Introduction to the Special Issue: Problem-Based Learning as Social Inquiry – PBL and Management Education, Gary Coombs and Max Elden, *Journal of Management Education* 2004; 28; 523.

[26] http://www.edu.gov.md/sites/default/files/esg_in_romanian_by_anosr_0.pdf, vizitat pe data 25.08.2016.

[27] Publicat în Monitorul Oficial al Republicii Moldova, nr.319-324 din 24.10.2014.

(1) Familiarization of the staff with PBL model. A group of professors from Flinders Medical University Adelaide (Australia) decided to show the efficiency of this model during an annual conference. They invited a group of professors and students from another university to simulate a PBL based class. This simulation basically proved that (1) students are very motivated; (2) students demonstrate a high level of critical thinking and problem solving skills; (3) students demonstrate impressive knowledge. The discussion following the demonstration was every bit as important as the demonstration itself. It showed that the PBL students had sophisticated thinking skills, could reflect upon and articulate their learning processes and were not necessarily intimidated by an audience of academics of all levels of seniority[28]. Nevertheless, what this case study shows is that authentic demonstrations of PBL in themselves may well be a better investment in staff development than readings, workshops and seminars.[29]

(2) Expense coverage for PBL integration. It is very difficult to motivate professors to use PBL when the budget does not allow to increase the salaries for this purpose. This is one of the most common reasons invoked. Both medical and laws schools professors are very much engaged in the professional activity in addition to academic career that is why it is indeed very difficult to motivate them to engage in new activities. An American university found a solution to this problem: use of PBL in the teaching process was included as evaluation criterion for professors who apply for career promotion. This change led to the fact that many departments reviewed the way academic hours were shared and more professors expressed the interest to be involved in practicing PBL.[30]

HOW A PBL CURRICULUM SHOULD LOOK LIKE?

New teaching model implies detailed review of the curriculum. The key of the PBL model is supervision of the small groups of students. Other interventions such as lectures, seminars, workshops should be organized in order to facilitate the small groups learning process. In this sense, central questions in curriculum development are: (1) what knowledge is important for graduates to develop and (2) what are the key capabilities, skills, and attitudes important for graduates.[31] Thus, curriculum development process has the following particularities:[32]

1. One of the main challenges PBL tutors face is to identify professional core competences and to put these competences, rather than their subject specialisms, at the core of the curriculum.

2. Professors have the role of facilitators or tutors of learning process and this is a difficult transformation. That is why professors need additional training on how to build a PBL curriculum.

3. In PBL curricula, the students need more guidance with independent studying, especially at the beginning of their studies. The result of new way of integrating shared and self/study is to reduce the time spent in lectures and to increase the time for independent study and information seeking. Lectures become a learning resource, like any other type of study including professional literature, work-based training periods, and exercises.

[28] Peter Schwartz, Stewart Mennin, *Graham Webb, Problem-based learning. Case studies, experiences and practice*, 2001, pag. 18.

[29] Idem.

[30] Peter Schwartz, Stewart Mennin, *Graham Webb*, op.cit., pag.20-26.

[31] Terry Barett, Sarah Moore, *New approach to Problem-based Learning. Revitalizing Your Practice in Higher Education*, 2011, pag. 7.

[32] Ibidem, pag. 231-235.

4. When work placement is part of the students' programme of study, it is essential that PBL tutors familiarize the workplace supervisors with the principles of PBL.

5. Within the PBL tutorial, the capacity for deep learning is strong. But if that capacity is to be authentically realized, the requirements of tutor engagement are substantial.

6. In the PBL curricula, the quality, relevance, and accessibility of learning resources are highly important as PBL students are working on current professional practice problems.

7. If the values and practices of group work are supported throughout the programme, but assessment are conducted on an individual basis only, the consistency of the underlying values becomes confused and contradictory. Another challenge of PBL is to design assessments that are both PBL-compatible and drive learning in relation to the core professional competences identified.

These are just several basic particularities of a PBL curriculum. Each law professor should think how to build a PBL curriculum based on the specifics of each discipline.

PBL EXAMPLES

PBL model is based on the problem as a main trigger for the educational process. The problem can be theoretical or practical, however, it is necessary to formulate it in a way, which will allow students to analyze and solve the problem, even from an interdisciplinary perspective. Working out a solution among themselves in a small group is highly motivating for the students, as recognized by Kilpatrick. In working on the project students apply knowledge they acquired before and they learn new knowledge when they need it (Kilpatrick et al, 1921)[33].

Law professors currently use problems in the educational process, some of them even present alternative solutions and students should choose the right one. However, we think that students should be encouraged to formulate their own problems and come up with solutions. In order to illustrate the type of problems law professors use, we decided to present several examples below.

Example 1: During the seminars of administrative law students have been asked to formulate the topics of their research projects. The majority of them suggested very up-to-date issues such as: „Consultation of citizens on various important problems of local communities", „Grounds for mayor's revocation", etc. However, some students faced difficulties to identify a research topic or a problem, which should be solved. In this sense, we consider that a better collaboration between law schools and potential employers should be encouraged through round-tables, joint conferences, visits, internships etc. Employers are the one which can explain students which are the most up-to-date problems.

Currently, the law school curriculums do not provide different methods on how to organize the individual assignments for students. PBL model is mostly based on conducting a project in a limited time (usually during a semester) by a small group of people (3-4). A professor supervises the group. Although a group develops the project, students are evaluated individually in accordance with the contribution of each member of the group. This model should be implemented at the law school once PBL will be introduced in the university curriculum. This model is more efficient and interesting for students than the method currently used for individual assignment.

[33] Kilpatrick, W. H., Bagley, W. C., Bonser, F. G., Hosic, J. F., & Hatch, R. W. (1921). Dangers and difficulties of the project method and how to overcome them. *Teachers College Record*, 22, 283-321.

Example 2: During constitutional law seminars students have been asked to do a group project instead of individual assignments. Although they had a limited period of time to do their assignment (3 weeks), students succeeded to do a project and to present its results at the conference on "Development of constitutionalism in the Republic of Moldova" held by Constitutional Court on May 11, 2016. Students obtained third place in this competition. Students mentioned that group work has many advantages as they are more responsible and each group member is willing to contribute for better result. In fact, mutual assistance is essential for a successful project.

We consider that currently law students should be taught how to work in-group. Unfortunately, currently students do not have the skills to do such projects. The lack of a discipline aimed at teaching students to work in teams (as at Aalborg University) leads to the students' incapacity to operate in groups and to distribute efficiently their tasks.

Also, the lack of motivation and encouragements for law professors to develop necessary sources to guide students is also a problem. The lack of experience of law professors to guide students and to evaluate the results of their projects is also an obstacle for the proper implementation of PBL. In fact, continuous education of law professors on PBL methodology is crucial for successful implementation of new teaching methods.

Example 3: During environment law classes students may solve the issue of unauthorized dump at the community level. In order for students to solve this problem they have to undertake the following actions: to draft motions and to submit them to competent authorities, to draft preliminary request, to challenge the actions or the omissions of the authorities, to file a motion to court, etc. In order students to do that, they have to know the law and to have proper skills to draft such documents. Unfortunately, currently legal writing and skills is lacking from university curriculum.

While introducing PBL model in teaching environmental law one should take into account that the legal relationships related to environment may occur within other branches of law such as constitutional, civil, administrative and penal law. This means that students should be familiar with other branches while solving environmental law issues. Additionally, the legal framework is very extensive and legal regulations are increasing also due to the harmonization of national legislation to European standards. Another obstacle for using PBL model for teaching environmental law is the lack of jurisprudence in this area. In order to solve the problems students should have access to real cases as well.

In this context, in order to introduce PBL model at law schools should be considered the following aspects:

• the review of human resources and salary policies;

• creation of students' assistance center;

• creation of an excellence center on teaching and learning for professors in order to facilitate exchange of experience and continuous education;

• improvement of the relationship between the law schools and the employers;

• participation of the employers and graduates at the development of university curriculum;

• introduction of lawyering skills discipline in the university curriculum;

• collection of the feedback from students and graduates about the quality of the curriculum;

• creation of the scholarship program on national and institutional levels for professors which will use PBL model;

• education of professors on using IT tools;

• proper equipment.

PBL use at the law school is indeed a new experience for Moldova as group work on a specific project may involve several disciplines and intercalate the theoretical aspects with practical issues. Moreover, the law professor should supervise and facilitate the group work of students organized in small groups. PBL use will make the disciplines more interactive and will increase students' accountability and develop critical thinking and problem solving skills. These skills are essential for future lawyers. For this purpose each curriculum should provide teaching-learning model and the assessment tools. Students may benefit from interactive learning techniques, research assignments and partnership with other organizations.

Currently there are different opinions regarding the use of PBL model including at the Law School of MSU. However, the biggest challenge is how to find the proper tools to ensure students path in getting knowledge efficiently and facilitating their learning process in a way, which will allow them to learn from their own mistakes.

PBL AND THE ORGANIZATIONAL CULTURE IN THE EDUCATIONAL INSTITUTIONS

Covaş Lilia
Academy of Economic Studies, Republic of Moldova

Abstract: Problem-based learning (PBL) is an approach that challenges students to learn through engagement in real problems. But it is important to take into consideration that this method assumes changing not only the teaching strategy, but the main beliefs and values from the universities. Thus in order to implement this method at the universities from the Republic of Moldova we should assure that the organizational culture from higher educational system existent now in Moldova is appropriate. The purpose of this article is to explore the concept of current organizational culture at education institutes so the effective management methods will be developed. The analysis of the organizational culture's dimensions allows observing human behavior within the universities and high lighting reality, identifying the strengths and also the weaknesses which have an impact on its functionality and development. In this paper, we try to present some models for assessing organizational culture in universities for the reason of implementing PBL.

Keywords: Problem-Based Learning, university management, organizational culture, competing values framework.

The current period of time is characterized by an exceeding development of technical science, which leads to an avalanche of information and the improvement of its quality and breadth. Thus, the Digital Era imposes new requirements for the traditional educational system. As for higher education, it is impossible for the lecturer to teach the whole information available at the given topic, as well as for the student to assimilate it entirely. Under these circumstances, it is necessary to find learning methods that would facilitate the educational process by selecting the information needed for a problem or for making an optimal decision.

Notwithstanding the fact that the current higher educational system in the Republic of Moldova was proved to be efficient on a long run, it needs to be updated. Nowadays, it is mostly focused on learning raw information instead of developing the skills one needs in order to use the acquired knowledge in practice. As a result, students lack practical habits for solving problems by themselves and are not confident in their own skills.

Problem-Based Learning (PBL) is a modern studying method centred on the student, which entails learning any particular topics by solving problems. It allows each individual student to research in order to find the answer, meanwhile developing their strategic thinking. This way, they build the habit of finding the solution in a very efficient way. Moreover, as the process assumes group work, it contributes to developing their communication and collaboration skills that are so important nowadays.

The implementation of PBL offers numerous advantages to all the stakeholders: professors, students, companies where they will be employed and so on. This method leads to a constant development of the teacher's professionalism and a closer relationship with his students. At the same time, due to the active position that students have during PBL, they change their attitude toward the learning process, are fully involved and, as a result, are motivated. Companies have the possibility to hire professionals whose qualification are

not only limited by theoretical up-to-date knowledge, but are also able to analyze and solve complex problems, showing cognitive skills of a high level.

Problem Based Learning was proved to be efficient in many countries. Its utility is not doubted. This brings up the question: to what extent is PBL compatible with the higher educational system existent now in Moldova.

It is important to take into account that this method assumes changing not only the teaching strategy, but the main beliefs and values of this process as well. To exemplify, practicing PBL requires a fault-tolerant environment willing to discover new things, which is not typical for our educational system. This way, the implementation of PBL will remain only a formality, unless we enterprise any essential adjustments.

Organizational culture is a system of shared values and assumptions that has a strong impact on the members of this organization. This concept was brought to light and has started being debated in the `70s of the last century, later becoming a key organizational factor for boosting the company's competitiveness and efficiency. Organizational culture can be used as a powerful strategic tool that connects all the branches and individuals of an organization imposing the same goals, ensuring loyalty and improving their inter-personal relationship.

Organizational culture assumes a collective mind programming, which makes the staff of any particular organization different and unique. The culture emphasizes their collective thinking standards, values, concepts, rituals, habits, ceremonies and so on. In every company some ideas and behaviours are either encouraged or disapproved depending on the main values of the company itself. The higher the level of organizational culture in an institution, the less it needs instructions, meticulously detailed schemes and indications.

A company's corporate culture consists of a multitude of elements: partially visible-artificial products, the employees' behaviour, language; as well as visible- main concepts, values, beliefs and standards. One should bear in mind that the last have a decisive role in the impact that the culture has on the organization's performance. Only if the main concepts and values are adapted to the institution's purposes it would be possible to achieve success.

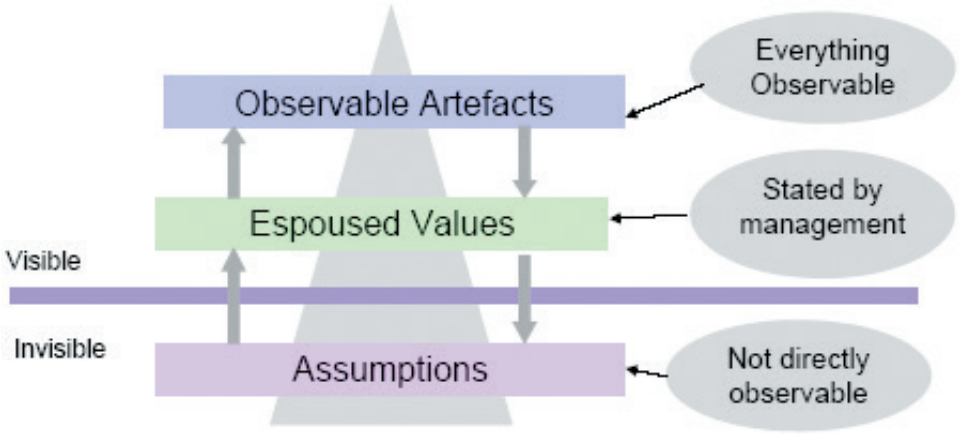
Hence, the process of implementing PBL in autochthonous educational institutions should rather start with a diagnose and analysis in terms of compatibility with this learning technique.

The process of evaluation itself allows discovering the weaknesses and fortes of human resource in an organization. The results of this research can be an informational basement for making the right decisions in order to improve the organization's activity and to avoid any future difficulties.

During the evolution of management science a few patterns were proposed that can serve as a main investigation algorithm of an organization's culture particularities.

Schein (1985) in his work "Organizational Culture and Leadership" has identified three levels of organizational culture: artefacts (physical elements, observable); values, assumptions, beliefs and main concepts.

Figure 1. *Schein Model*



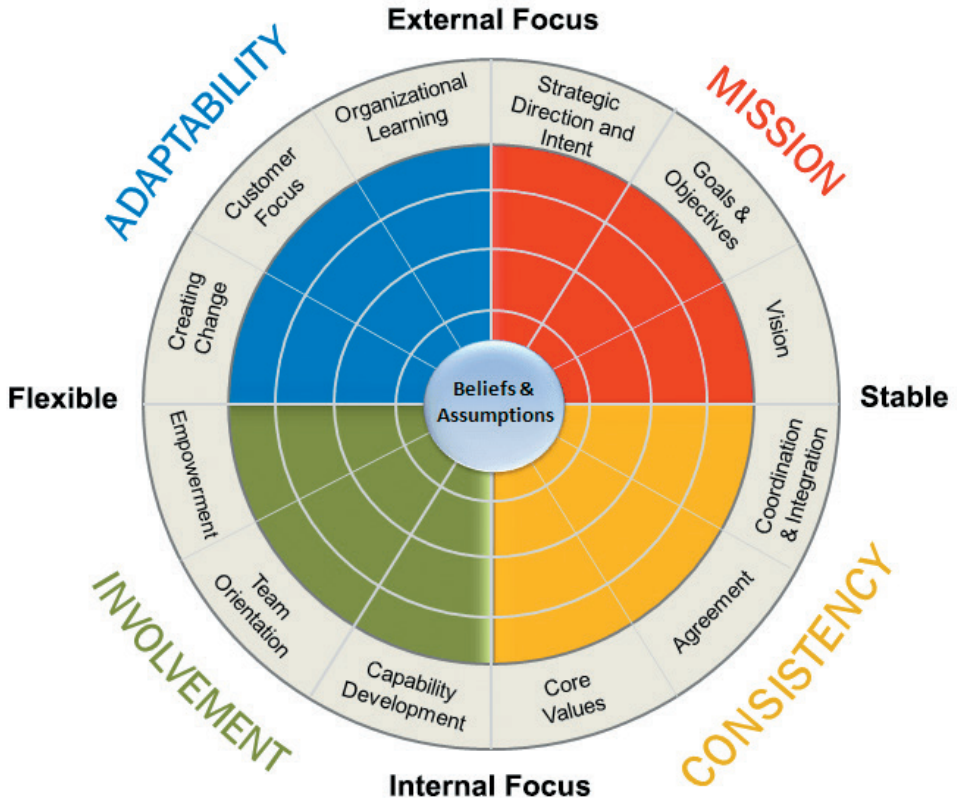
Source: http://www.valuebasedmanagement.net/methods_schein_three_levels_culture.html

Separate and system analysis of each element of an organization's culture gives a practical foundation to evaluate the company's particularities. By using this technique the research has a qualitative character rather than quantitative.

On the other side, Denison (1990) proposed an analysis model of organizational culture that distinguishes four dimensions: involvement, consistency, adaptability and mission. Each dimension embodies three characteristics.

This pattern is based on identification of the members' fundamental attitude on various aspects of organizational life. Presumably, the attitude underlies some presuppositions regarding the employees' behaviour in a company.

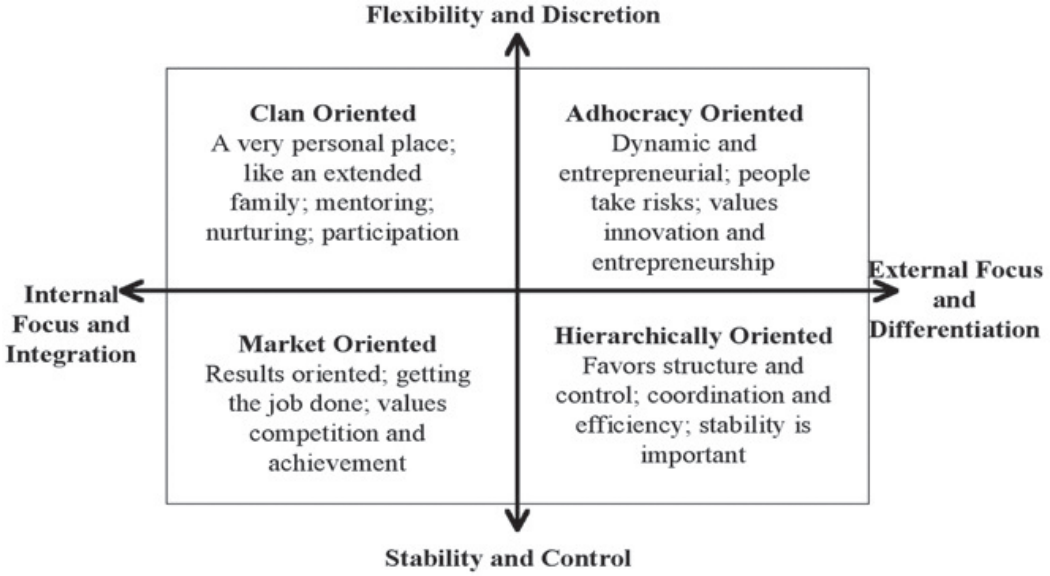
Figure 2. *Danison Model*



Source: http://www.denisonconsulting.com/model/organizational-culture

Another approach on organizational culture belongs to Kim S. Cameron and Robert E. Quinn (2011). The authors claim that a successful implementation of any strategy in order to improve the organizational environment consists of modifying the organizational culture.

Figure 3. *A Model of Cultural Congruence for Organizations (Cameron & Quinn)*



Source: https://www.ocai-online.com/userfiles/file/ocai_pro_example_report.pdf

The pattern was designed by establishing "39 indicators that were analysed and ended up forming two main dimensions, depending on what indicators were enrolled in four groups". The two dimensions previously mentioned assume the existence of concurrent values like stability, flexibility, internal orientation and external orientation. The intersection of these resulted in creating four quadrants (Figure 3), each representing a set of distinctive indicators and representing a particular type of organizational culture: clan oriented, adhocracy oriented, market oriented and hierarchically oriented.[34]

As can be noticed from Cameron and Quinn's pattern (2011) a **hierarchically** oriented corporate culture is an example of bureaucracy, "procedures govern what people do, but the leaders are good coordinators and organizers" (Cameron and Quinn, 2011, p.42). A **market** oriented corporate culture is based on competition and achievement, both at enterprise level to ensure a better place in their field, as well as individual level in order to improve every employee's productivity. A **clan** organizational culture is oriented towards the company's human resource, involving group work, active participation and mutual respect on a large scale. As for **adhocracy** oriented culture, it is also mainly focused on entrepreneurial spirit, innovation, flexibility, dynamism.

This pattern results not only in an in-depth analysis of the corporate culture, but also portrays the link with the company's leadership and human resource management. Cameron and Quinn's model was the pattern underlying their evaluation methodology of a company's organizational culture – "Organizational Culture Assessment Instrument" (OCAI).

The tool previously mentioned OCAI has already been used in a few studies realized at higher educational institutions level (Fralinger & Olson, 2007; Berrio, 2003; Adkinson & Mulvihill, 2005; Faeman, 2009).[35]

[34] Hudrea A., *Cultura organizaţională în mediul universitar românesc,* Revista Transilvană de Ştiinţe Administrative 1(36)(2015):70

[35] Nica, P., Constantin, T., Nestian, A.S. şi Leon, R., *Cinci analize diagnostic cultural pentru cinci universităţi*, Iaşi: Editura Sedcom Libris, 2013.

Unfortunately, there was not such a research in the Republic of Moldova, however a recent investigation in this field that was led in some Romanian universities. An analysis of the results obtained would be welcomed.

The study "Five cultural diagnoses for five universities" was realized in 2013 by Panaite Nica (coordinator), Ticu Constantin, Ramona Diana Leon as a part of the project "University Community for quality management in higher education". The survey was conducted on a sample of 1165 persons from five universities (Alexandru Ioan Cuza University of Iasi, Bucharest University of Economic Studies, University of Bucharest, Babes-Bolyai University of Cluj-Napoca, and West University of Timisoara). The analysis is very ample, simultaneously involving two aspects: the current situation in the university environment, as well as the desired state of affairs.[36]

According to the obtained results after applying "the organizational culture evaluation tool OCAI", as for the current lie of the land, in the Romanian university environment prevails a hierarchically oriented organizational culture (28,19%). To put it differently, Romanian universities are centralized, formalized, structured and are focused on internal affairs, being concerned about economies, respecting the deadlines and other formalities. In a perfect situation, clan oriented culture has the biggest share (28,78%), having inter-personal relationships as a top priority, it encourages collaboration, involvement, group-work, cohesion, employment, communication and development.

A very important point is to analyze what the values are promoted in Romanian universities, both nowadays and in a perfect situation. Through the least important values are, in both situations, the following: "Cultural diversity","Consistency, tenacity, perseverance", "Managers' respect towards other's opinion", "Managers' respect for their commitments". The recorded differences between value hierarchies, determined based on the gap between the current situation and the desired one, reflects the fact that the responders would like to promote the following values in their organizational environment more intensely: "The satisfaction of both teaching ,administrative staff and students", "Team work and mutual trust" and "Open communication (between the academic community members). These are followed by "Transparency", "Improvement of working environment", "Consulting and involvement", "Organizational excellence and improvement of personal performance" and "Passion and professionalism".

On the other side, the values that are reputedly over appreciated are: "Respecting policies and procedures" and "Meticulous execution of managers' dispositions". These are followed by: "Result orientation", "Competition", "Aggression" and "Efficiency boosting and price-cutting".

Another research, led by Andrian Hudrea and Loredana Andrievici in 2016 contains an organizational culture analysis of two faculties from two different universities: Electrical Engineering Faculty (EEF) of The Technical University (Cluj-Napoca) and Political, Administrative and Communication Sciences Faculty (PACSF) of Babes-Bolyai University (Cluj-Napoca).[37]

During the investigation, they tried to identify the type, or respectively, types of culture that prevails (out of the four according to Cameron and Quinn's theory) and to compare the two faculties and, on the other side, the departments of each. The main goal was to find out

[36] Nica, P., Constantin, T., Nestian, A.S. şi Leon, R., *Cinci analize diagnostic cultural pentru cinci universităţi*, Iaşi: Editura Sedcom Libris, 2013.

[37] Hudrea A., Andrievici L., *Cultura organizaţională în universităţi*, Revista Transilvană de Ştiinţe Administrative 1(38)(2016):64.

either if there is only one organizational culture specific for the system and faculty or, more likely, if there are different cultures in every faculty/university or even departments of the same faculty (subcultures). Consequently, the results showed that both faculties, despite being from two fundamentally different universities, are dominated by the same organizational culture (however, not by too much compared to other culture's prevalence). To define, it is a **hierarchically oriented culture** (slightly more common in TU Cluj) which is, furthermore, specific to the entire Romanian higher educational system, the statement being proved by the studies previously mentioned as well. The only notable difference between these two organizations is the fact that PACSF-BBU has a more homogenous culture than EEF-TU, the goals in all four dimensions being closer. As for favourite culture, there are also some similarities between the two organizations, they both want to ameliorate or get rid of hierarchical elements and bring more **clan or adhocracy** typical characteristics, while the attitude towards market oriented culture remains the same, the score being unchanged.

One should notice that in Romania a series of studies related to this topic were conducted.[38] As a whole, it can be concluded that the Romanian higher educational environment is dominated by an organizational culture that represents a mix of all four culture types, though being dominated by the hierarchic culture. It is characterized by control, formalism, predictability, stability and internal orientation.

Considering these reasons, it would be prolific to conduct a diagnosis of the organizational culture in Moldovan universities. As national culture is a crucial factor in the formation of an organization's culture, and the community environment in both countries has many similarities, we can assume with certainty that in the autochthonous higher educational institutions the hierarchically oriented culture prevails as well.

Consequently, a successful implementation of PBL would be possible only when there will be created an educational culture, promoting knowledge as a value. The underlying element would be an institutional system centred on learning, not teaching. At the same time both students and lecturers must adapt according to the new roles and responsibilities. This process would assume switching to an organizational culture prevailed by clan orientation.

The dominant attributes of this culture are: cohesiveness, participation, team work and sense of family; the leader in clan culture is like a mentor, facilitator and a parent figure; loyalty, tradition, interpersonal cohesion are important; the strategic emphases are towards developing human resources commitment and morale (Cameron & Freeman, 1991). Strong clan cultures are far and away perceived to be the most effective on performance dimensions that have been traditionally valued in the higher education community, while strong hierarchic cultures are perceived as consistently ineffective.

Switching to a different culture should start with changing the concepts and values that prevail. Afterwards, according to their organizational strategies, an institution should apply various techniques that are broadly described in speciality literature. If an organization plans to increase clan type of culture, the organization can provide team building, internal communication, and participation opportunities to its employees.

[38] Hudrea A., *Cultura organizațională în România. O analiză a cercetărilor în domeniu*, Revista Transilvană de Ştiinţe Administrative 2(37)(2015):120-131.

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BOOSTING THE RELATIONSHIP BETWEEN ENTERPRISES AND UNIVERSITIES – IMPORTANT STAKEHOLDERS IN THE EDUCATIONAL PROCESS

Liudmila Stihi, Associate professor, PhD in economy
Academy of Economic Studies of Moldova, BAA Faculty, Management Department

Abstract: Currently all areas of activity have a dynamic pace of development and constantly changing. To meet the challenges of the present economic environment businesses need qualified specialists not only in terms of knowledge but also in terms of specific skills and competencies. Currently there are significant discrepancies between the level of training of specialists and the employers' expectations, which negatively influence the employment rate of graduates as well as the performance of enterprises. In order to reduce these disparities, a strong cooperation between the key players of the educational system – universities and enterprises is necessary, including motivating employers to adopt a proactive strategy and involvement in the educational process.

Keywords: Entrepreneurial learning, entrepreneurial competence, business environment, education and training methods, business infrastructure, project-based, problem-based learning.

Education improves the quality of people's lives in ways that transcend benefits to the individual and the family by contributing to economic prosperity and reducing poverty and deprivation. Countries with low levels of education remain in a trap of technological stagnation, low growth, and low demand for education. Research assessing the link between the quantity of education (in terms of enrolment or average years of schooling) and economic growth has been encouraging but somewhat mixed, perhaps because ultimately what matters for growth is not the years that students spend in school, but what they learn. By measuring education levels based on what students have learned, one influential study estimates that an increase of one standard deviation in student scores on international assessments of literacy and mathematics is associated with a 2 percent increase in annual GDP per capita growth.[39]

In order to ensure sustainable economic growth European Commission and the EU countries elaborated in 2008 the SME Policy Index: Eastern Partner Countries "Small Business Act" for Europe (SBA) [40], which provides a comprehensive SME policy framework, promotes entrepreneurship and anchors the "Think Small First" principle in law and policy making to strengthen SMEs' competitiveness.

This strategic document is structured around 10 fundamental principles that ensure implementation of required measures for improving the regulatory framework, business and administrative environment and support European SMEs. Among them are:

1. Entrepreneurial learning and women's entrepreneurship;

2. Bankruptcy and second chance for SMEs;

[39] World Bank Group Education Strategy 2020. Learning for All Investing in People's Knowledge and Skills to PromoteDevelopment.page3.
http://siteresources.worldbank.org/EDUCATION/Resources/ESSU/Education_Strategy_4_12_2011.pdf

[40] Commission Communication 'Think Small First' - A 'Small Business Act' for Europe, COM (2008)394 final.

3. Regulatory frameork for SME policy mking;

4. Operationl environment for SMEs;

5A. Support service for SMEs and start-ups;

5B. Pablic procurment;

6. Sccess to finance for SMEs;

7. Standards and technical regulations;

8A. Enterprise skills;

8B. Innovation;

9. SMEs in a green economy; 10. Internationalisation of SMEs.

Republic of Moldova joined the assessment activity of SBA in 2012.

In this article we analyse the first principle of SBA: "Entrepreneurial learning and women's entrepreneurship", which is focused on the continuous development of entrepreneurial skills at all stages of education, providing citizens the opportunity to integrate more efficiently in various fields of activity.

For the 2016 assessment report of the SBA indicators, Moldova recorded a small progress for Principle 1, increasing from 2.10 to 2.57 points, while the highest score is 5 points. This means that Republic of Moldova demonstrate better engagement and co-operation among the range of stakeholders involved in entrepreneurial learning.[41]

At the same time, the 2016 assessment included new indicators on entrepreneurship education achievement particularly related to higher education system: *Good Practice in Entrepreneurial Learning in Higher Education; Higher education cooperation with the world of business;Entrepreneurial Learning in Higher Education.* Most countries, including Republic of Moldova already have a regualtory framework requiring universities to co-operating with business. The impact of this regulation, however, is difficult to assess in the absence of monitoring or evaluation arrangements to determine the impact.[42] Inclusion of these new indicators confirms the importance of engaging multiple stakeholders in educational process so that the knowledge and skills acquired by students to be correlated with employers needs. However, there are large reserves on improving educational processes, including to entrepreneurial one, whichas was defined by European Training Fondationis a competence necessary for all people and can be developed throughout entire life.

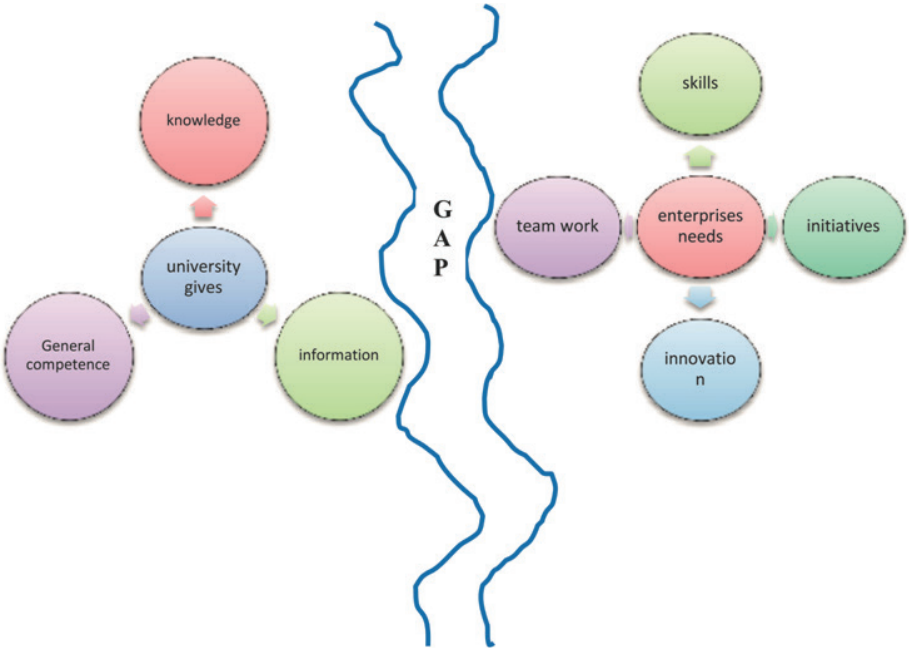
In the Republic of Moldova, currently, the involvement of private companies in the educational process at any level is weak. These two important systems, business and education are working independently (Figure 1), registering significant discrepancies between the level of training and skills aquired and actual business requirements.

[41] SME Policy Index: Eastern Partner Countries 2016: Assessing the Implementation of the Small Business Act for Europe Entrepreneurial learning and women's entrepreneurship (Dimension 1) in Eastern partner countries. OECD. European Union. EBRD. EFT. OECD Publishing. Paris. 2015 Chapter 1. Page 73.

[42] SME Policy Index: Eastern Partner Countries 2016: Assessing the Implementation of the Small Business Act for Europe Entrepreneurial learning and women's entrepreneurship (Dimension 1) in Eastern partner countries. OECD. European Union. EBRD. EFT. OECD Publishing. Paris.

http://www.keepeek.com/Digital-Asset-Management/oecd/development/sme-policy-index-eastern-partner-countries-2016/entrepreneurial-learning-and-women-s-entrepreneurship-dimension-1-in-eastern-partner-countries_9789264246249-8-en#.V8QEv9KLQ1.page 70-71.

Figure 1. *GAP between the competence developed by the higher education and employers needs.*



This gap has a negative influence not only on the employment rate of graduates but also on their ability to perform job tasks and to participate in identifying and solving various situations.

However, I'd like to mention that some higher education institutions from Moldova including Academy of Economic Studies of Moldova (ASEM) conducted certain activities to attract businesses to actively participate in the educational process. Thus, in 2014 the Academy of Economic Studies of Moldova conducted focus group activities with business representatives from different fields.

The aim of the focus group was to identify the knowledge required in the study process so that future graduates of the ASEM can be more easily integrated into labour market and meet the job demands.

As a result of this exercise in the curriculum for both 1st and 2nd cycle were introduced new courses that would enable young graduates to obtain new set of knowledge requiredto keep up with actual trends of the development. But, only with the introduction of new courses and without changing the teaching process it is unlikely to achieve good and satisfying results for employers.

In 2016, the Centre for Placement of ASEM conducted a survey on major employers concerning the skills expected from young economists. The study found that the vast majority of employers focus fully on another set of skills as opposed to those currently practiced within the university. Among the most required competencies mentioned by most employers are:

- On the first place – communication skills
- Second place – adaptation skills and capacity for action in new environments
- Third place – team work abilities
- Fourth place – self-training, problem analysis and solving skills
- Fifth place – creativity and innovation
- Sixth place – theoretical knowledge from the area of activity.

Based on these findings, we can say with certainty that employers focus on the skills that are common for every person, develop in longer periods of time and are also more difficult to change, rather than on theoretical knowledge from a particular field. In the environment so dynamic and changing of our century, the preparation process of the future generation of specialists it is more importantly to focus on developing practical skills, stimulating creativity and analytical skills than on loading information which cannot be applied in practice and that quickly loses its actuality.

In this context it is certain that new forms of education and training methods need to be implemented, among which is Problem Base Learning. As identified in the early 70s of the twentieth century, this method of training allows students to development specific skills based on real situations, without imposing any standard solutions.

According to Tan Oon Seng "Problem-based Learning (PBL) is an active-learning and learner-centered approach where unstructured problems are used as the starting point and anchor for the inquiry and learning process. PBL is not just about problem-solving processes; it is a pedagogy based on constructivism in which realistic problems are used in conjunction with the design of a learning environment where inquiry activities, self-directed learning, information mining, dialogue, and collaborative problem-solving are incorporated. In recent years, PBL has gained new momentum as a result of several developments such as increasing demand for bridging the gap between theory and practice, information accessibility and knowledge explosion, new possibilities in the use of multidisciplinary problems, emphasis on real-world competencies, and developments in learning, psychology, and pedagogy." [43]

Any discussion of project-based or problem-based learning is quickly complicated by the use of specific terms that have a variety of definitions and understandings in the broader literature. The following terms are defined for the purposes of clarifying their use in the Principles of Problem and Project Based Learning.[44]

PROBLEM

A problem can be theoretical, practical, social, technical, symbolic-cultural and/or scientific and grows out of students' wondering within different disciplines and professional environments. The problem is the starting point directing the students' learning process and situates the learning in a context. A chosen problem has to be exemplary. The problem may involve an interdisciplinary approach in both the analysis and solving phases.

PROJECT

A project is a complex effort that necessitates an analysis of the target (problem analysis) and that must be planned and managed, because of desired changes that are to be carried out in people's surroundings, organization, knowledge, and attitude to life; it involves a new, complex task or problem; it extends beyond traditional organizations and knowledge; it must

[43] Tan Oon Seng.Problem-based learning: the future frontiers. National Institute of Education, Nanyang Technological University, Singapore. PROBLEM-BASED LEARNING: THE FUTURE FRONTIERS. http://www.tp.edu.sg/staticfiles/TP/files/centres/pbl/pbl._tan_oon_seng.pdf

[44] Principles of Problem and Project Based Learning The Aalborg PBL Model. Page 7. September 2010. http://www.aau.dk/digitalAssets/62/62747_pbl_aalborg_modellen.pdf

be completed at a point in time determined in advance. Projects are necessarily diverse with regard to scope and specific definition. No one specific template or standard exists to define "sufficiency" but rather, these determinations are made within each programme.

EXEMPLARITY

Exemplarity is a principle of selecting relevant specific learning outcomes and content / scientific knowledge that is exemplary to overall learning outcomes. That is, a problem needs to refer back to a particular practical, scientific and/or technical domain. The problem should stand as one specific example or manifestation of more general learning outcomes related to knowledge and/ or modes of inquiry.[45]

To implement this method in higher educational system of the Republic of Moldova, I consider that there should be solved two major problems concerning: 1. the process of teaching, which unfortunately in most higher education institutions is reduced to two or three forms, focusing primarily on transmission of information rather that skills training; and 2. involvement of private sector/businesses for identifying real situations or problems that may be offered to students as case studies in order to develop practical skills required by employers.

Both problems are difficult to solve and require joint efforts from academia as well as from businesses that are direct consumers of universities` products – qualified specialists.

Further, I would like to focus on the second issue, namely stimulating business involvement in the educational system.

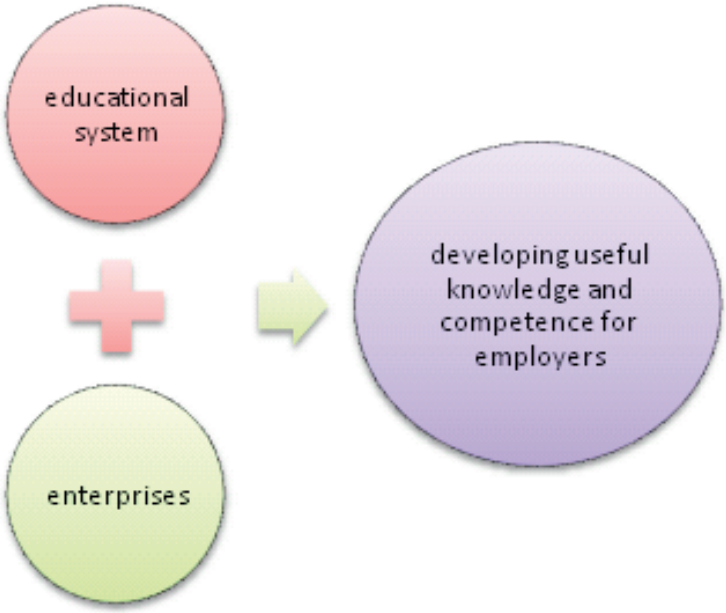
In the Republic of Moldova, private sector is predominantly represented by SMEs, which own approximately 97.4% of total enterprises. Within this sector currently operates 50.3% of total employees, the remaining being employed in large enterprises and public institutions. These companies have a quite small turnover to allow spending money for additional training of young specialists. Moreover, vast majority of job offers require minimum two years of work experience, which young people find difficult to accumulate. As a result, it forms a vicious circle where are launched accusations on the quality of educational system, instead of finding practical solutions.

WHAT WOULD BE THE STEPS?

First of all, we need to change the paradigm of perceiving the educational system of businesses side, from one based on consumption – where institutions prepare professionals and businesses are only consumers of the final product, to one based on involvement – where business is part of the educational system and actively contribute to the training of future specialists, including by making investments.

[45] Problem-based Learning in the Classroom.accesed August 28 2016. https://cirt.gcu.edu/teaching3/tips/pbl

Figure 2. *New paradigm based on involvement*



Implementing new paradigm involves creating sustainable partnerships between universities and enterprises, including establishing practice centers for both teachers and students.

Secondly, to facilitate business involvement in the learning process and creating sustainable partnerships can be used the existing business infrastructure in Moldova, namely: business incubators platforms, including virtual ones; industrial parks; free economic zones; producers associations; employers and sectoral committees. For instance, from 2007 with the support of the Norwegian Government and Local Public Authorities in Moldova were opened nine business incubators, which are managed and developed by the Organization for SME sector development (ODIMM). The aim of these incubators is to help create a favorable business environment for newly established enterprises in rural areas; to promote and develop entrepreneurship; to enhance business competitiveness and to create qualitative jobs. Thus, during this period, within all incubators are activating 155 businesses that have created over 630 jobs. By the field of activity, 24 enterprises are operating in industry and 127 in the provision of services. In addition, 45% of enterprises are start-ups. Certainly, universities can establish reliable partnerships with business incubators to ensure implementation of innovative trainings focused on the development of relevant business skills. Also all forms of business association can contributeat identifying the common competencies of a particular sector as well as at elaboration of case studies that will further be integrated in the learning process.

Based on these platforms can be developed joint creativity, innovation and practice centers, for teachers and students. Moreover, scientific centers hosted by universities can initiate fundamental or specialized research for enterprises, with student involvement in the process.

On the other hand, the enterprises benefits would be quite obvious, namely: lower costs for creating centers of practice and training new specialists, individualized and innovative solutions to the problems identified, young specialists skilled in accordancewith employers needs.

In conclusion I would like to mention that the education reform recognizes employers as key stakeholders in education and regards nonformal skills training as part of a continuum of learning opportunities for acquiring key knowledge and skills.

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http://www.keepeek.com/Digital-Asset-Management/oecd/development/sme-policy-index-eastern-partner-countries-2016/entrepreneurial-learning-and-women-s-entrepreneurship-dimension-1-in-eastern-partner-countries_9789264246249-8-en#.V8QEv9KLQ1g#page 69.

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6. Tan Oon Seng. Problem-based learning: the future frontiers. National Institute of Education, Nanyang Technological University, Singapore. PROBLEM-BASED LEARNING: THE FUTURE FRONTIERS.
http://www.tp.edu.sg/staticfiles/TP/files/centres/pbl/pbl._tan_oon_seng.pdf

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CHANGING THE RELATIONSHIP BETWEEN STUDENT – TEACHER AND THE REAL SECTOR OF ACTIVITY

Andrei Popa, PhD., University Professor; Todos Irina, Associate Professor
Ludmila Roșca-Sadurschi, University Lecturer; Olesea Vulpe, University Lecturer
Slavic Gîrneț, University Lecturer; Ludmila Noni, University Lecturer
Department of Economics and Business Management and Services, Cahul State University

Abstract: The education, the same as other area in the context of globalization, requires a permanent adjustment to the new changes. These changes should be done at the level of teaching, the changing of teacher role and student role in teaching-learning process. Nowadays, it is becoming increasingly important the relationship between student – teacher – and the real sector of activity, relationship that offers a lot of benefits to everyone.

Keywords: higher education, modern teaching methods, relationships: university – students – real sector of activity, Problem-based Learning, university autonomy.

The changes that have occurred in the economic, social and political life of the Republic of Moldova imposed the necessity of the elaboration and development of a new legislative framework, a new and effective educational policy, as well as, the adaptation of these items to the new international conditions to achieve an optimal integration into the globalization process.

After the Republic of Moldova has declared its independence, a new concept of the national education has been designed and approved (1995) [46], a regulation which represents the legal basis of the reforms in the society. As the main objective of the new regulation aimed at adapting the national higher education to the requirements of higher education in the European Union, in 2005 the Law on Education was modified to create favorable premises of incorporation and adaptation of national higher education to the new principles and requirements of Bologna system. Those reforms have, ultimately, contributed to the fact that currently in Moldova, there is a higher education system formed of/based on three levels: the first cycle – Bachelor (ISCED level 6), the second cycle – higher education master (ISCED level 7), the third cycle – doctoral higher education (ISCED level 8); the implementation of ECTS system of transferable credits and the existence of a National Qualifications Framework.[47]

Higher education in Moldova is under the responsibility of the Ministry of Education and other central public authorities, whose responsibility is reduced to the following: [48]

- Development of higher education policy;
- Approval of annual plans of admission;
- Development of higher education framework;
- Determination of budget funding in higher education institutions;
- Evaluation and accreditation of higher education institutions;
- Intergovernmental cooperation in the area, etc.

[46] Legea învățământului nr. 547, din 21.07.1995. Publicat: 09.11.1995 în Monitorul Oficial Nr. 62-63 art Nr: 692. Data intrării în vigoare: 09.11.1995

[47] Cadrul Național al Calificărilor din învățământul Superior, nr. 934 din 29.12.2010

[48] http://www.edu.md/

In turn, according to the Education Code[49], higher education institutions still have university autonomy which gives the university community the right to organize and to self-manage, to exercise the academic freedom without any interference of ideological, political or religious beliefs, to assume a set of competences and obligations in accordance with the national policies and strategies for the development of higher education.

The university autonomy approves the domains of management, structuring and functioning of the institution, teaching and scientific research activity, of administrating and financing and it is mainly accomplished by:

• organizing, developing and improving the educational process and scientific research;

• developing of study plans and syllabuses in accordance with the state educational standards;

• organization of students' admission;

• selection and promotion of the teaching, scientific-educational and scientific staff;

• establishing the evaluation criteria of teaching and scientific research;

• providing didactic titles;

• eligibility of all governing bodies by secret vote;

• solving the social problems of the students and staff;

• management of financial resources through bank accounts, including the state budget transfers;

• accumulation of own revenues from fees, provided services, works and other specific activities etc.

In the new terms of activity dictated by the social, political and economical instability, the autonomy of the university plays a decisive role in building the capacity of existence and future development of higher education institutions. As universities must have specific skills in management, structuring and functioning of the institution, teaching or scientific research, administration and financing so as to meet the new requirements of activity on *The institutional framework – real Sector (Business) – Internationalization*.

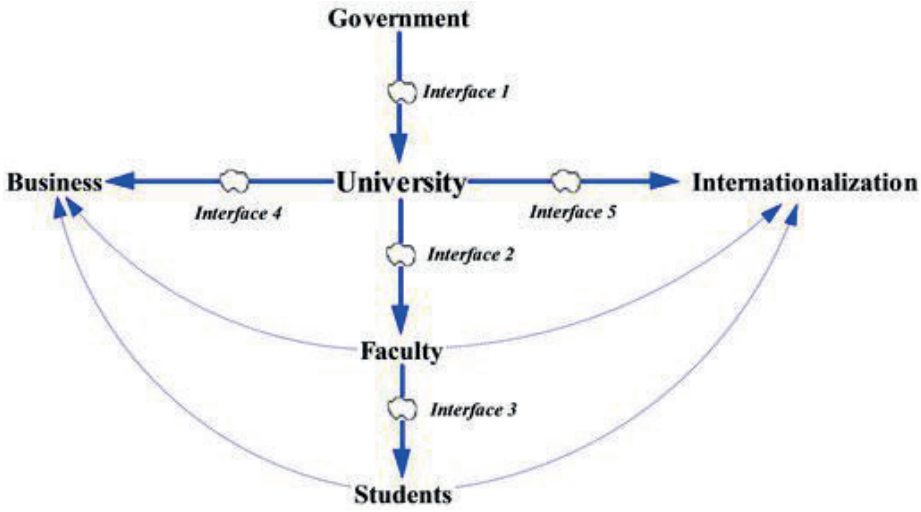


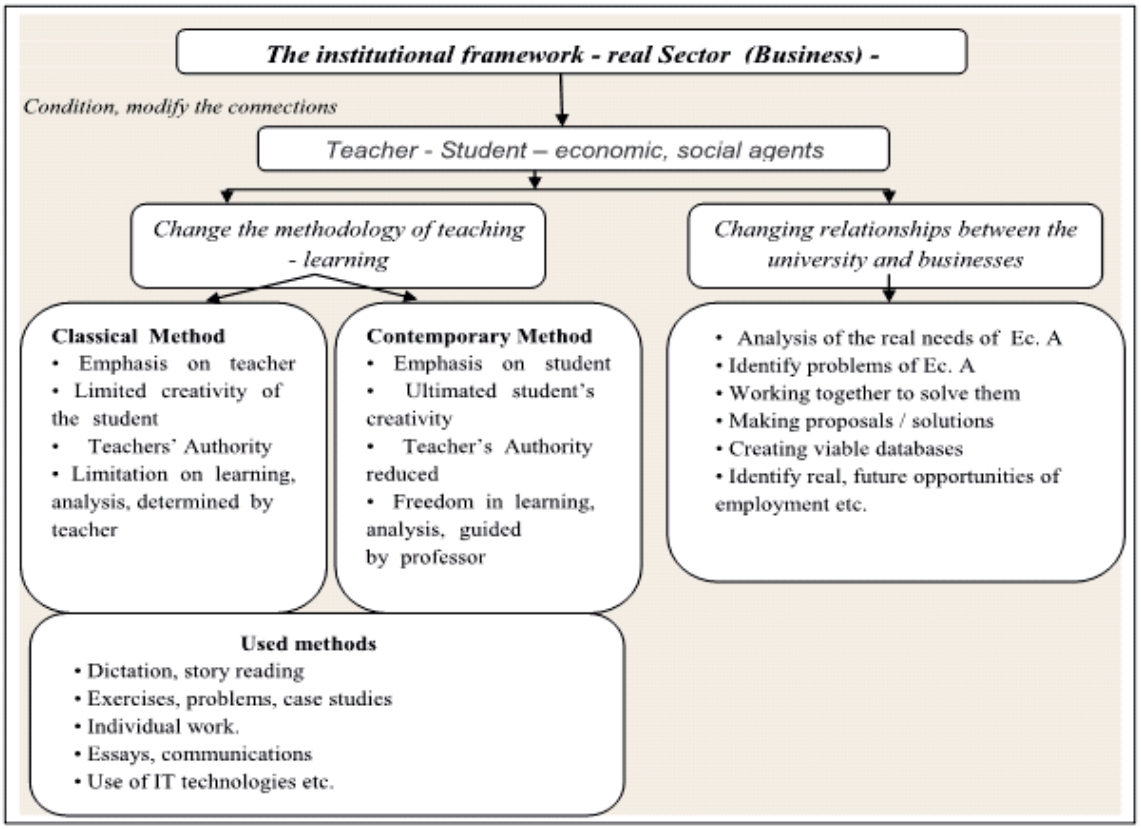
Figure 1. *The university institutional autonomy*

Source: http://www.euniam.aau.dk/

[49] Codul Educației al Republicii Moldova nr. 152, din 17.07.2014. Publicat: 24.10.2014 în Monitorul Oficial Nr. 319-324, art Nr: 634. Data intrării în vigoare: 23.11.2014

These conditions obligate the educational institutions in Moldova to accept, implement and promote a new vision of the organization, development of teaching – learning, a vision that ultimately leads to changes of the university *(professors) – students – real sector of activity* relationships. These are highlighted in the figure below.

Figure 2. *The teacher – student – economical agents relationships*

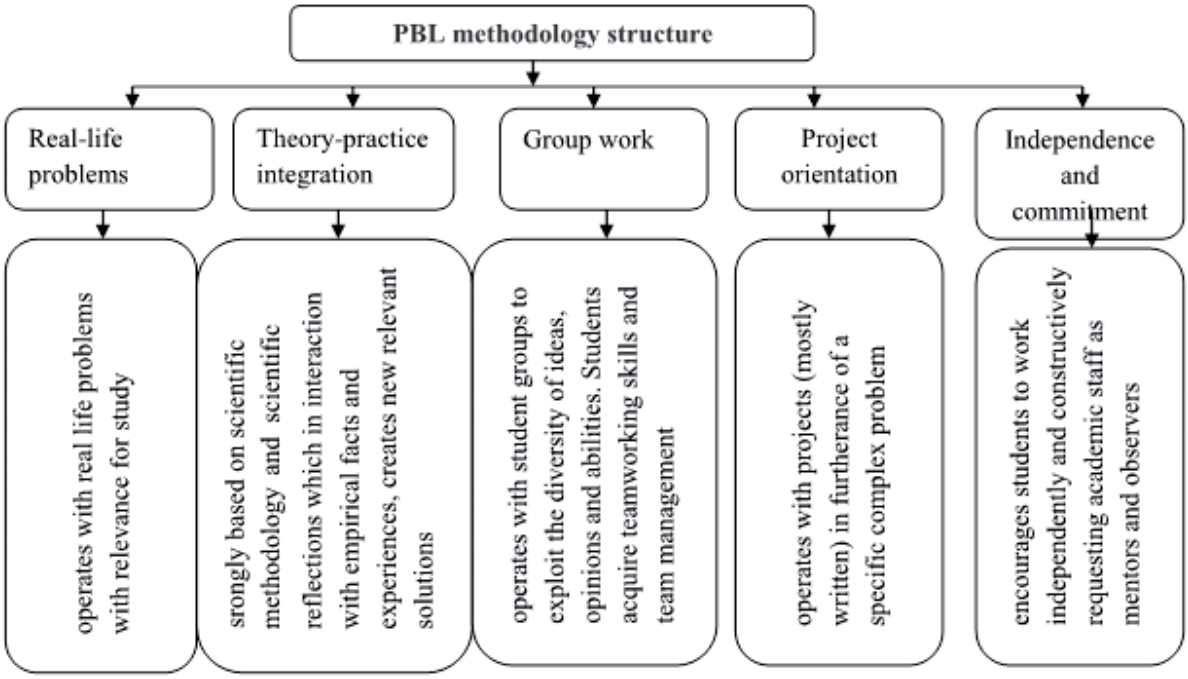


Source: Developed by authors

The experience taken from universities of the EU will contribute substantially to the implementation of new and modern teaching methods, centered on students. These methods mean that all students are taught how to apply theoretical knowledge in practice, solving a problem. At the same time, this model encourages students to develop communication skills, working in group and analytical vision on solving the problem. Some of the student- focused methods, used in a number of universities in the EU are: *Problem-based Learning – PBL* and learning based on questions EBL, in which the emphasis is less on curriculum memorization or theory, and it mainly approaches specific problems through projects. This type of educational approach includes research that promotes individual initiative and individual characteristics of a student's creative thinking. Students learn strategies for thinking and knowledge in the area. PBL aims are to help students to develop flexible knowledge, efficient problem-solving skills, self-directed learning, effective team working skills and intrinsic motivation.

PBL is a methodology for studying pedagogy, it is focused on the student, encouraging students to work independently and constructively, requesting the academic staff as mentors and observers. It is a philosophy of study, according to which the process of study is organized in such a way, that students participate actively and independently in identifying problems and searching for answers. Generically, PBL consists of the following five elements:

Figure 3. *Own PBL methodology of study.*



Source: http://www.euniam.aau.dk/library/university-autonomy/

Pedagogy focused on student, as PBL, significantly helps students to increase their competitiveness and employability. It also contributes to the dissemination of the research results, which allows the academic staff to get engaged in the research-based teaching, offering directly to students the latest scientific and business elaborations.

Using PBL methodology in teaching-learning:

- Allows students to take the lead and to be responsible for their own studies;
- Creates a strong relationship between students and teachers;
- Encourages competitiveness and possibilities of increased employability of students;
- Integrates and supports the socially disadvantaged students.

The success of the implementation of new teaching-learning methods depends a lot on the physical environment of the educational institution, because it supports the problem-based teaching. Optimal arrangement of the classrooms *(large rooms for courses and small ones for teamwork)* and providing them with proper equipment. Modern equipped libraries to have access to Wi-Fi on campus. Extensive use of Moodle platform, social networks and Skype especially for group work. This is basically one of the key conditions to perform a qualitative study process because the material-technical equipment which is appropriate and compatible with the educational process creates direct access to information, to various possibilities of calculation and analysis, evaluation of various socio-economic indicators and features the possibility of implementing the PBL methodology within the university.

The experience of universities from the EU, that concerns the new teaching- learning methods use, opens for us a new vision on the relationship between ***professor – student – real sector of activity***:

1) Increase of the proportion of practical activities and research in the curriculum.
2) The interdisciplinary character of the projects carried out, which increases their value.
3) Students' group work to carry out projects.

4) Permanent cooperation with economical agents to meet the needs and real problems facing the economic activities.

These directions create a number of advantages in the learning process both for the student and for the teacher:

1) Transformation of teachers from *"a professor into a mentor and facilitator"* of the course;

2) Diversification of teaching skills regarding: *knowledge, comprehension, application, analysis, synthesis, evaluation*;

3) Creation of practical application skills of the theory in solving of various problems, as most of the curriculum is devoted to individual work, projects and case studies;

4) Obtaining a cumulative final project results as students of various specialties are involved;

5) Creation of teamwork skills, increasing the responsibility for performing the individual tasks in order to achieve the best possible outcome of the group, etc.

6) Developing of individual skills to identify the research problem and finding the necessary solutions;

7) Creating of individual skills in researching additional information necessary to solve the problem which is investigated;

8) Development of complex, viable and lasting relationships between the university – the real sector of activity – students.

The implementation of new teaching – learning methodologies, combined with the classic study makes the whole study process to be more attractive, and students more prepared for market requirements. At the moment, the collaboration of the University with business environment is one inevitable and interrelated, thus each of them having a significant role in the training of students.

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TRACK 3:

Innovating student-centred problem-based active learning

TRACK CHAIR:
KENNY LYNCH
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INNOVATING STUDENT-CENTRED PROBLEM-BASED ACTIVE LEARNING AT THE NICOLAE TESTEMITANU STATE UNIVERSITY OF MEDICINE AND PHARMACY: PREVIOUS EXPERIENCE AND ACTUAL CHALLENGES

Victor Vovc, Mihail Gavriliuc, Igor Cemortan, Angela Babuci
Andrei Padure, Eugen Melnic, Rodica Bugai, Victoria Rotaru
Nicolae Testemitanu State University of Medicine and Pharmacy
of the Republic of Moldova, Chisinau

Abstract: The implementation of study method based on problem (clinical case) analysis started at State University of Medicine and Pharmacy «Nicolae Testemitanu» (SUMPh) since 2006. Analysis of this first pilot implementation in terms of contemporary concept of the Problem Based Learning (PBL) denotes that we have implemented only an essential element of PBL method, especially for medical education – CBCR (Case Based Clinical Reasoning). So, during the subsequent implementation of the PBL method at the SUMPh we have faced a number of challenges created by adapting medical study program to the principles of contemporary method of PBL.

Keywords: medical curriculum, PBL, CBCR.

The implementation of study method based on problem (clinical case) analysis started at Nicolae Testemitanu State University of Medicine and Pharmacy (SUMPh) since 2006 when in the framework of TEMPUS Project "Problem Based Medical Education for Moldova" (CD_ JEP 25195- 2004) at three basic medico-biological pilot departments during the conventional annual discipline's program's running were introduced 10 practical lessons by method of Problem Based Learning (PBL) / Case Based Clinical Reasoning (CBCR).

Case Based Clinical Reasoning was introduced in a course in which clinical cases are worked through by small groups of students (size: 8-12) and in which basic science knowledge were associated with clinical patient management. Cases were created to guide students through this course. These cases consist of a clinical presentation, followed by consecutive questions, resembling the clinical reasoning patterns of clinicians, in combination of patho-physiological explanations. This "vertically integrated" teaching model combines the teaching of clinical sciences, such as internal medicine and other disciplines with basic sciences, such as physiology, physiopathology and other disciplines.

At the same time this teaching model placed students in a very central role. The student-centered nature of this education was reflected in the fact that students actually in turn run the small group sessions. The teacher was present, but had not a traditional didactic role. His or her task was to guide the learning process and problem-solving process and only to intervene when the students in the group got into trouble.

The staff has been selected among the following selected departments: Physiology, Pathophysiology, Neurology, Paediatrics, Surgery, Internal Medicine.

The training course consists of a three-day workshop in September at SUMPh and 6 small group sessions of 2,5 hours over the course of the second semester of the fourth year (semester 8), supervised by the European partners of the consortium.

60 students of the pilot departments were trained on PBL method and its implementation so as to have them playing an active role in every phase and, especially, to have their direct involvement in the implementation phase.

As a result of the training, 10 cases were created and Physiology and Physiopathology subjects were involved in each of it. Physiopathology Department, being in the middle between the hard-core basic sciences and clinical departments will have a leading role in both the training and in the implementation phase of PBL method.

The other selected clinical departments were involved in the development of the cases in the following number: Internal Medicine (4 cases); Surgery (2 cases); Neurology (2 cases); Paediatrics (2 cases).

The result of this pilot implementation of the PBL-CBCR method was successful according the opinion of students and teachers.

Analysis of this first pilot implementation in terms of contemporary concept of PBL, including experience using of current Project partners with Aalborg University „Introducing Problem Based Learning in Moldova: Towards Enhancing Students' Competitiveness and Employability (PBLMD)" denotes that we have implemented only an essential element of PBL method, especially for medical education – CBCR (Case Based Clinical Reasoning). So, during the subsequent implementation of the PBL method at the Nicolae Testemitanu SUMPh we have faced a number of challenges created by adapting medical study program to the principles of contemporary method of PBL.

The use of teaching cases in a conventional course, as practiced by many schools, appears similar to PBL, but the role of the student is far more passive. In authentic PBL, the student is asking the questions as well as answering them, teaching as well as learning, assuming primary responsibility for the process. According to a recent issue of JAMA devoted to medical education, 100 medical schools had reported the use of PBL. On closer inspection, however, it becomes apparent that most of this activity is case-enhanced teaching. While this is an effective learning mode, it is not a true PBL exercise [1].

PBL is a form of education in which information is mastered in the same context in which it will be used. Also, in its most recent medical forms, PBL is seen as a student-driven process in which the student sets the pace and the role of the teacher becomes one of guide, facilitator, and resource [1].

Contemporary PBL medical programs usually employ two fundamental principles: basic sciences are learned in the process of analyzing typical cases, and learning is motivated by student curiosity. These two elements are manifest in many different ways. For example, in analyzing a case, the student always comes to a point where more information is needed to continue. This results in the generation of an «issue.» An issue specifies an item of information that must be learned to complete the case. Once an issue has been identified, it becomes a learning goal for the next meeting. Each student then must find an answer to this question and be prepared to share it with other students. Thus, PBL employs student initiative as a driving force. The student generates the issues, provides the answers, and teaches fellow students [2].

Student-directed learning Issues are generated by students. The faculty facilitator assigned to each group does not take the lead or specify what the students are to know. In the give and-take of a small-group session, everyone serves as learner and teacher. Once all issues are generated, the students arrange them into a priority sequence that becomes the agenda for the next meeting. At the next session, students share their answers to outstanding issues and

identify another list to be covered at the following session. In this way, the students determine what they will learn (within limits), how they will learn, and how they will participate in the instructional process. A set of learning objectives is provided for each phase, but it usually is employed as a checklist in preparing for the examination [3].

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EMOTIONAL INTELLIGENCE AND TEAM EFFECTIVENESS

Timbaliuc Natalia, Lecturer
Academy of Economic Studies of Moldova

Abstract: Students need to develop a wide range of skills as part of their education. Professional skills are only a part of the abilities required by employers. Other skills like problem solving, communication, collaboration, interpersonal skills, social skills and time management are proven to be useful at the workplace. Employment authorities consistently mention collaboration and teamwork as being a critical skill, essential in almost all working environments. The results of a team are far more superior to the achievements of one individual, as long as the team has harmony, cooperation and is effective. One of the tools used by team leaders or teachers to facilitate group effectiveness is developing a high level of Emotional Intelligence. Emotional intelligence is important among team members to carry out their roles and tasks in a cooperative and collaborative manner. It helps in reducing conflicts and can create a more comfortable and cooperative work environment. Having high levels of Emotional Intelligence facilitates various aspects of the team process including effective problem solving, high quality production and performance, trust, commitment, interpersonal relationships, and collaboration.

Keywords: Emotional Intelligence, teamwork skills, effective teams, competencies.

INTRODUCTION

There is a growing emphasis that students should develop professional skills as part of their education. Skills such as problem solving, communication, collaboration, interpersonal skills, social skills and time management are actively being targeted by prospective employers as essential requirements for employability especially in team environments. Of these, employment authorities consistently mention collaboration and teamwork as being a critical skill, essential in almost all working environments.

Teams have more talent and experience, more diversity of resources, and greater operating flexibility than individual performers. Research in the last decade has proven the superiority of group decision-making over that of even the brightest individual in the group. But the exception to this rule is when the group lacks harmony or the ability to cooperate.

The important difference between effective teams and ineffective ones lies in the emotional intelligence of the group. Teams have an emotional intelligence of their own. It is comprised of the emotional intelligence of individual members, plus a collective competency of the group. Everyone contributes to the overall level of emotional intelligence.

Emotional intelligence is important among team members to carry out their roles and tasks in a cooperative and collaborative manner. It helps in reducing conflicts and can create a more comfortable and cooperative work environment. Team members need to be aware of their feelings as they may allow uncontrolled emotions to affect the dynamics and culture of the team. The skill of regulating emotions during work stress and conflict would help to smooth the project and enhance working relationships effectively with other members. Team members are not only responsible for their own motivation but also play a key role in motivating the

team and colleagues. Empathic team members think from various points of views and they accept the diversity of people.

EXPLORING EMOTIONAL INTELLIGENCE

An emotion is an individual experience. It is a personal experience in the sense that Student A cannot feel "happy" in the precise way that Student B does. Accompanying this individualized experience is the feature that emotions are influenced by a person's interpretation of his or her present situation. Emotions can have a positive, negative, or possibly neutral feature that accompanies them (Magill, 1993). Emotions have functions. They are not only purposeful but also enlightening and informative. They greatly affect decisions, behaviors, and communications with others. An understanding of emotions and the ability to use them to understand and direct decisions, behaviors, and communication is the basis of theories of Emotional Intelligence.

Only in the past decade or so has the study of Emotional Intelligence begun to emerge. Since then, several theorists have studied Emotional Intelligence and developed their own definition and construct for measuring this ability. EI has been described as "the capacity to effectively perceive, express, understand and manage emotions in a professional and effective manner at work". Several schools of thought exist which aim to accurately describe and measure Emotional Intelligence.

Mayer and Salovey first formally defined Emotional Intelligence when they theorized about a person's management of emotions. They expanded on Gardner's theory of intrapersonal and interpersonal intelligence theory by hypothesizing that there were five sub-domains included in Emotional Intelligence (Mayer, Salovey, & Caruso, 2004). "Emotional Intelligence involves the ability to perceive accurately, appraise, and express emotion; the ability to access and/or generate feelings when they facilitate thought; the ability to understand emotion and emotional knowledge; and the ability to regulate emotions to promote emotional and intellectual growth" (Salovey & Sluyter, 1997).

Goleman's theory emerged a few years after Mayer and Salovey. Goleman adapted Salovey and Mayer's model as a basis for his discussion of the theory of emotional intelligence and it's implications for everyday life including the world of work. Credit is given to Goleman for making the notion of Emotional Intelligence popular. He states that Emotional Intelligence is an ability that one acquires. His theory includes "zeal" and "persistence" and can be associated with personality theories. Goleman theorized that Emotional Intelligence consisted of varying dimensions. These dimensions can be divided into two subgroups: interpersonal relationship management and self-management. Each of these subgroups is comprised of self-management, awareness of self, zeal, empathy, persistence, social skills, and finally, social awareness (Hamarta, Deniz, & Saltali, 2009). Goleman included "abilities such as being able to motivate and persist in the face of frustrations; to control impulse and delay gratification; to regulate one's moods and keep distress from swamping the ability to think; to emphasize and to hope" in his definition of Emotional Intelligence (Feyerherm & Rice, 2002). Goleman puts a strong emphasis on Emotional Intelligence and success in life, relationships, and work, and academic-related activities.

Reuven Bar-On presents another model of Emotional Intelligence that can be classified under a mixed model. His model incorporates a social competency aspect as well as the ability to manage stress. Bar-On defines his Emotional and Social Intelligence model as "a cross-

section of inter-related emotional and social competencies that determine how effectively we understand and express ourselves, understand others and relate with them, and cope with daily demands and pressures" (Bar-On, 2004).

Between Mayer and Salovey, Goleman, and Bar-On's theories, there are significant similarities between them that all combine to form a general outline of Emotional Intelligence. Each theorist believes that Emotional Intelligence involves the awareness and understanding of one's emotions as well as the emotions of others. Another commonality between their theories is the need for emotional regulation and self-management. Emotional Intelligence affects one's relationships with others, work performance, and overall success, so the use of emotional information is another part that comprises Emotional Intelligence.

EFFECTIVE TEAMWORK

Teamwork is defined by Harris and Harris as "…a work group or unit with a common purpose through which members develop mutual relationships for the achievement of goals/ tasks". Teamwork implies that individuals work in a cooperative environment in the interests of a common goal by sharing knowledge/skills and being flexible enough to serve multiple roles. The literature consistently highlights that one of the essential elements of a team is its focus toward a common goal and a clear purpose (Fisher, Hunter & Macrosson, 1997).

Team management is the most challenging task since it involves complex processes. A number of factors may affect team effectiveness even at its early stage of development. There are studies that look into the role of positive and negative emotions in team. Positive affective tone groups had lower absenteeism, and less negative tone teams exhibited more helping behaviors.

Teams are most effective when all members participate and collaborate with one another, assuming that the members have already developed a team identity, mutual trust, and a feeling of efficacy. One model of team effectiveness includes a claim that Emotional Intelligence is necessary for a team to build an identity, mutual trust, and feelings of efficacy, thereby becoming a successful collaborative team. Druskat and Wolff, state that Emotional Intelligence is not the only factor that makes an effective team, but is more of a foundation upon which to build a team. They divide Emotional Intelligence within a team into three divisions:

1. Members being aware of their own emotions, as well as the other member's emotions, and understanding how that affects the team process,

2. Members being aware of the emotions and moods that the team experiences as a group,

3. Members being aware and understanding the emotions of those individuals that are not in the team.

In the article entitled "Building the Emotional Intelligence of groups", Vanessa Urch Druskat and Steven B. Wolff (Harvard Business Review, March 2001) identify three conditions essential to a group's effectiveness:

- Trust among members
- A sense of group identity
- A sense of group efficacy.

To be most effective, the team needs to create emotionally intelligent norms — the attitudes and behaviors that eventually become habits — that support behaviors for building

trust, group identity and group efficacy. Group identity is described as a feeling among members that they belong to a unique and worthwhile group. A sense of group efficacy is the belief that the team can perform well and that group members are more effective working together than apart.

Joe Luca and Tarricone suggest that skills needed for successful teamwork can be viewed from different perspectives, ranging in nature from "Visible to Invisible". A programmer in a team has technical skills which can be tested for competence, and classified as a "visible skill". Also, having acceptable generic and team skills is highly desirable but not always easily testable i.e. testing for time management, problem solving or collaboration skills can be difficult. Another skill set, known as „Emotional Intelligence" is increasingly being promoted as being necessary for successful teamwork. Emotional intelligence consists of five main elements – self-awareness, self-regulation, empathy, motivation and social skills which are difficult to test for, and certainly are not as "visible" as technical skills. The study showed a compelling relationship between students' emotional intelligence and their ability to work effectively within a team. Visible skills and emotional intelligence should both be considered when selecting team members for a collaborative environment.

Figure 1: *A spectrum of skills needed for teamwork* [50]

"Visible" Skills	Technical Skills	Generic Skills	Team Skills	Emotional Intelligence	"Invisible" Skills
	Programming Design Authoring Other…	Time Management Problem Solving Setting Priorities Other…	Collaboration Communication Negotiation Other…	Empathy Self-awareness Social awareness Other…	

It was found that there was much commonality between successful teamwork and emotional intelligence, there is a strong relationship between successful teamwork and emotional intelligence and contend that emotional intelligence competencies are more important than the "Visible skill" set shown in Figure 1, such as technical competencies. There is more to effective teamwork than a keen intellect and grasp of technical knowledge. The difference between success and mediocrity in working relationships, especially in a team environment, can be attributed to a team member's mastery of the softer skills – abilities and approaches grounded in emotional intelligence. (Grossman, 2000).

Positive, effective interpersonal relationships are an important element of successful teams. Emotional bonding that exists between team members has a profound effect on the work produced and the overall success of the project. Teams that care about each other at a personal and professional level are more likely to be successful than teams that ignore the importance

[50] Gujral, H., Ahuja, J., (2011). Impact of Emotional Intelligence on Teamwork – A Comparative Study of Self Managed and Cross Functional teams. International Journal of Multidisciplinary Research, Vol.1 Issue 6, October 2011, ISSN 2231

of the relationship between positive interpersonal relationships, professional relationships and goal achievement. Developing positive relationships where team members are aware of the impact their emotions can play on the effectiveness and success of the team should be the aim of each team member. A positive emotional climate should be developed so that all energies can be focused on the attainment of mutual goals including the success of the project (Johnson & Johnson, 1999).

In order to promote positive, progressive, effective working environments, team members need to have a combination of technical knowledge and well-developed emotional intelligence including self-awareness, empathy, social awareness and be highly motivated and be able to inspire and motivate their colleagues.

Table 1. *Emotional Intelligence and attributes of successful teams (Luca & Tarricone, 2001)*[51]

	Definition	Relationship to Successful Teamwork
Self-Awareness	The ability to recognize and understand one's moods, emotions, and drives, as well as their effect on others	Having positive and productive teamwork skills Controlling emotions and understand the impact of emotions on the team Being self-confident, high self-esteem and a coherent and integrated self-identity Promoting psychological health including a happy disposition
Self-Regulation	The ability to control or redirect disruptive impulses and moods The ability to think before acting	Handling emotions and putting the team task first Using emotions to facilitate the progress of the project Regulating emotions during conflict, pressure, stress and deadlines Coping with stress, frustrations through creating and contributing to caring, supportive relationships
Motivation	A passion to work for reasons that go beyond money or status An inclination to pursue goals with energy and persistence	Motivating other team members to contributing their best Openness, flexibility and motivation to change, innovation, creativity and collaborative problem solving Creating an environment that stimulates, enhances and empowers team members to become motivated and apply themselves fully Showing initiative, perseverance and dedication, goal orientation and focus Having a sincere interest and motivation for the group and individual's achievements and goals Considering team morale and aiming to maintain a positive productive work environment

[51] Luca, J., Tarricone, P. (2001). Does emotional intelligence affect successful teamwork? In Meeting at the crossroads. Proceedings of the 18th Annual Conference of the Australasian Society for Computers in Learning in Tertiary Education. Melbourne, Australia, 9-12 December 2001

Empathy	The ability to understand the emotional background of other people	Understanding, interpreting and identifying with colleagues' feelings Cultivating rapport with people from different backgrounds Showing emotional concern including reassurance and caring for other team members Helping to create a team environment where members can express their feelings
Social Skill	Proficiency in managing relationships and building networks An ability to find common ground and build rapport	Creating a team culture which is supportive, informal, comfortable, and non-judgmental Developing professional as well as positive personal relationships with other team members Developing intense, short-term relationships and being able to disconnect and work in another team environment with the same sincerity and motivation Helping to establish a positive team climate and promoting support and respect for one another Having the ability to interact with team members and deter conflict, be aware of, ease and dissipate underlying tensions

CONCLUSION

Emotionally intelligent teams are more apt to participate in a collaborative culture because they are able to understand their own emotions as well as the emotions of the other team members, which in turn enables them to regulate their emotions and actions. Emotional Intelligence, with regard to management of others emotions and management of one's own emotions, was significantly positively correlated with team trust, which in turn facilitated a collaborative team.

Emotional Intelligence within a team allows members to be in control of their emotions and aware of team member's emotions, which enables a trusting relationship to emerge. Emotional Intelligence also allows teams to communicate well and make decisions that are best for all members. Although Emotional Intelligence alone does not guarantee a team's effective performance, it does enrich the team process. An emotionally competent team can control their own emotions, understand the emotions of their teammates, understand the emotions of the group as a whole, and ultimately use this information to help guide them through the group process. Having high levels of Emotional Intelligence facilitates various aspects of the team process including effective problem solving, high quality production and performance, trust, commitment, interpersonal relationships, and collaboration.

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USING PBL IN PUBLIC ADMINISTRATION STUDIES

Daniela Pojar, magistru în drept, doctorand, lector universitar
Catedra de drept privat Universitatea de Stat „Alecu Russo" din Bălți

Abstract: The purpose of this article is to briefly describe how PBL and other active learning methods can reinforce student's understanding of Public Administration studies. This method will help student to achieve the necessary practical experience by focusing on real cases and solving real problems to have a deep understanding of all the processes that occur at the local and at the central level of public administration. This kind of approach will enhance the development of some fundamental competencies, such as: problem solving skills, better understanding of real projects, critical thinking, team work and team leadership etc. The current model of the study programmes in Public Administration do not correspond to the Labor market requests and sometimes includes disciplines that do not focus on the development of core skills and competencies. The transition from the traditional teaching methods to a new model of student centered learning method will help to strengthen overall management objectives of higher education, opening the way for competitive services, managing to contribute to the transition to the knowledge economy.

Keywords: active learning, teaching methods, skills, competencies, learning outcomes, Public Administration.

The modern Higher Education System has a strong connection to research and it is oriented to the employment of all the graduates of these institutions. Each member of the academic community should be concerned about the implementation of the university's mission and vision in everyday life. Using innovative teaching methods including the widespread use of ICT is part of the strategy of higher education institutions, as these methods benefit both to the higher education system in general and to academic staff and students in particular.

A modern higher education institution emphasizes on the introduction of innovative teaching methods in the educational process. The correct mixture of traditional and innovative methods of training contributes to the development of cognitive interests and creative abilities of students, promotes their preparation for practical work. In a society that is changing so fast, where the competition becomes stronger day by day, the lack of practical experience and skills of a potential graduate can be a serious and significant obstacle to their employment and career growth. With regard to this, in the last period are becoming more popular some modern teaching methods, aimed to develop students' specific skills. By using a variety of new techniques, it facilitates to improve the development process of the material, also, it teaches students to think and how to apply the knowledge gained in the lectures. This knowledge is often much theorized and it takes a lot before the graduate can apply it in "real world". In this article we will try to describe how the method of problem-based learning and other active-learning methods contribute to a better understanding of the disciplines of the Public Administration program and how can be applied the acquired knowledge in practice.

Problem-based learning – is model that organize learning around project.[52]

Problem-based learning, as well as other Active Learning teaching methodology is an innovative method, whose principle is student-centered learning. In this process, students are

[52] A review on research on problem based learning, John W. Thomas, 2000, p. 2

involved in various activities that promote analysis, synthesis and evaluation of information obtained in class. The activities are carried out under the umbrella-shaped content and consist mainly of the following:

- Simulations;
- Group projects;
- Formulation of a problem;
- Research projects;
- Case studies.

In general, the teamwork and the group activities are essential throughout the study period. Referring to the problem it should be with a complex and reflective content. The simulated situation should be very connected to the real world and it is more important how students are going to implement their theoretical knowledge than the result they are going to obtain. That is why it should be a balance between the learning outcomes in the sense of their content and of the process, how they are achieved. The authors Alexia Papageorgiou, Peter McCrorie, Stelios Georgiades and Maria Perdikogianni, the authors of the book Psychology for Psychologists: A Problem Based Approach to Undergraduate Psychology Teaching[53] affirm that the modern teaching method is superior to the traditional one, but it has different obstacles during the implementation. The orientation towards process versus the orientation to outcomes is one of the main challenge of this method.

The group activities are carried out in several stages, with the participation of the professor. The first stage is planning which takes place in the following manner: the selection of the members of the team and the distribution of the tasks. The second stage is the group monitoring, taking place in the following manner: the coordination of the individual`s contribution, discussions, debates and negotiations and finally the drafting of the report or of the mini-project. The third stage is dedicated to the assessment, conducted in an original manner: the peer review and the assessment how the tasks were accomplished. The assessment is an aspect that differs when a professor uses a traditional approach to teaching and when he uses active methods in teaching. In Active Learning is not important the result, is more important the methods one chose to get to this result. As Bloom's Taxonomy establishes a learner should: apply (execute and implement), analyze (differentiate, organize and attribute), evaluate (check and critique) and create (generate, plan and produce). These are the key competencies and the job description for a future public servant.

These should be the learning outcomes should be obtained by the learners. A professor should focus on the following aspects if he aims to a successful teaching:

- The dynamic of the group is of a great importance;
- To explain during the seminars which is the path to get over to certain decisions;
- To challenge to think about how to get over to certain decisions;
- There is no correct answer, but the rationale how someone got over to a certain answer;
- Simulations are more structured then the case studies;
- An innovative approach to teaching and spreading the use of ICT in teaching.

For a result oriented teaching and knowledge transfer process, a professor from Public Administration program should challenge students to use the tools offered by ICT. Also,

[53] Psychology for Psychologists: A Problem Based Approach to Undergraduate Psychology Teaching/ edited by Alexia Papageorgiou, Peter McCrorie, Stelios Georgiades and Maria Perdikogianni, p. 36

modern and innovative teachers should use new teaching methods in order for their teaching to become more active. For example, the use of the Adobe Connect Platform, Moodle and a new and interactive assessment method called Kahhot! It is generally accepted that the problem is the starting point of the learning process of students. It can be both theoretical and practical and its typology can be authentic or can have scientific and multidisciplinary approach. This teaching philosophy is based on the following principles:

• The organizational framework of the PBL methodology is always based on project. The purpose of a project is always defined by the formulation of the problem;

• To accomplish a project students need fundamental, theoretical knowledge, which can be get only during the courses, seminars etc., because he theory is studied for a better understanding of practical things;

• Teamwork and cooperation represents the motive power of Active learning methods and especially of PBL, because students work in groups, where an individual`s activity contribute to an overall result and differences generate creativity;

• The project enhances student's competencies, mainly focusing on professional development, because the problem of a project should be close to a practical situation;

• Students are responsible themselves for their learning outcomes. They organize their activities independently and they are guided by a supervisor. The presumption of the model is: students are eager to learn, otherwise they will not succeed.[54]

How to organize a project at the subject taught at Public Administration (e.g. Labor Law):

1. To formulate a question related to the domain (for example the analysis of a legal concept or the analysis of an affirmative or negative question);

2. To identify the relevant legal sources in order to formulate a comprehensive answer;

3. To compare the result of the conducted analysis with the existing theories and doctrines in the field;

4. To discuss relevant legal problems and practical situations;

5. Concluding remarks.

The role of the teacher/tutor/supervisor is accomplished by the mean of teaching in small groups, usually formed from 2-5 persons. The written form of the project should be done in an academic manner and using the adequate language. The supervisor has not to read the whole project, his role is limited just to involve the students into the activity. His task consists, also in enhancing and stimulating student's competencies and aptitudes.

From this aspects, I consider of a great importance the use of Active Learning methods, especially PBL in teaching different disciplines at Public Administration program. Some extra arguments that can enforce the use of PBL in modern teaching can be presented as follows:

1. The collaboration with future and possible employers, the internship is a good opportunity to launch it.

2. The students will be motivated to learn theoretical aspects of the discipline with regard to identify the relevant solutions to solve the problem.

3. The role of the professor is to guide the student with regard to the problem to be solved. The education becomes more and more student centered: Less Us. More Them![55] We focus too much on teaching and do not permit learning.

54 Olaf Jull Sorensen, presentation for Moldovan Delegation at Aalborg University in the period 8-12 February 2016

55 Gary Steger,TEDX NY, https://www.youtube.com/watch?v=m-06cPuXf30

4. To enhance the capacities to work in group. This will allow to identify free-riders from young period and will prepare for the life realities.

5. The students will become more open minded and will offer the necessary support to each other.

6. Students will have a proactive implication in curricula design.

7. Students will become more engaged to enhance their own competencies to learn, and will become more self-critical.

8. The academic staff will become more visible outside University due to the collaboration with potential employers.

9. The study program will have a relevant impact in the society, because of the collaboration and the involvement of external parties.

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THE PROBLEM WITH THE PROBLEM: ON STUDENT ORIENTATION IN AN ADVANCED PROBLEM BASED TEACHING AND LEARNING

Friedhelm Eicker, Christoph Bohne and Gesine Haseloff
University of Siegen

Abstract: Problem based education is not always desirable and does not lead to a good student orientation automatically. Rather, pivotal elements, the quality of the problems and the type of solution of the problems matter. The problems must contain pivotal tasks of prospective activities of the students. The students must be addressed by the problems. In vocational education, the problems must contain pivotal tasks of the prospective vocational activities of the students. The problems must invite the students to acquire a competence, namely shaping comp¬etence, by finding a solution more or less on their own and under consideration of possible alternative solutions. This will not only lead to the acquisition of information/knowledge/skills. Furthermore, it will not only lead to the ability to more or less skilfully combine information/knowledge/skills. Alone or in a group, the students must learn how to define and solve real problems of their everyday life and of their work life meaningfully and they need to justify the solution on their own. In this respect, the students need guidance and support. This article delineates and justifies an advanced problem based teaching and learning (PBL). Especially the requirements for a problem and the student orientation will be discussed. An adequate learning project will be described and discussed.

Keywords: Problem based teaching and learning (PBL), student orientation, shaping competence, learning project, learning task

INTRODUCTION

No education can ever succeed without orientation on the interests of the students. This holds true for the (further) education of teachers as well as for the education of students. But sheer student orientation, which orients solely on subjective student interests, is not meaningful too. This essay describes which student orientation can be desirable in which PBL. A learning project in practice from a lesson will illustrate it further.

It will be argued for a pragmatic student orientation in PBL, which targets essential shortcomings of the traditional PBL. As far as possible, it will orient on specific students and their interests. The focus lies on students (trainees) in the dual vocational educational system in Germany and on the teachers (in companies, in vocational schools and in other setting for vocational education). Teaching competencies will be targeted, which need to be acquired by teachers in vocational education, to initialise the sustainable acquisition of educational competencies of their students, which will then allow the trainees to participate in the shaping of their working practice.[56] Therefore, the targeted pragmatic student orientation in the advanced PBL has basically a double practical relevance: From a vocational education point of view, the focus is on the working/teaching practice of the teachers and in line with this, the underlying (prospective) working practice of the trainees is aimed at.

[56] On the orientation on shaping competence in vocational education see various articles in Eicker, 2009

In traditional PBL or in student orientation, the problem is the pivotal element. The targeted advanced PBL and the then expected student orientation do not necessarily question this pivotal element. But the problem needs to be constituted on a constructivist basic position, consequently in educational scientific theory, on a didactic model concept, which influences concepts for lessons and on principles for teaching and learning. In vocational education, a pragmatic constructivist approach needs to be followed oriented on vocational education under the consideration of scientific disciplines.[57] Therefore, the problem needs to be problematized and PBL needs further consideration.

CONCERNING PBL AND THE PROBLEM

Usually, PBL is understood as a form of education, an educational strategy or as an educational concept. It traces back to the 1920's and to the pragmatist John Dewey, who developed an educational model, which is oriented on projects, and who coined *learning by doing* (see i.a. Dewey, 1910 and 1951). His works are based on constructivist pedagogy (Neubert et al., 2001, p. 255). PBL was being developed further over decades.[58] PBL is seen as innovative with its central problems and can be found in vocational education too until today. Critics argue that the (central) learning problem in PBL is more or less dictated by the teacher, that the generation of the problem does play a minor role and that the solution of the problem is often predetermined for the student. This leads to a student behaviour which is questionable.

Instead, Wikipedia describes *PBL* as a form of education, which has the characteristic to enable students to find a solution for a – still – prescribed problem on their own. Self-initiated, self-determined, self-regulated and self-evaluated learning as well as discovery learning and interdisciplinary learning were highlighted here – either with the support of a tutor or even without any teacher.[59]

It is striking that the – still – prescribed problem, an authentic and complex written problem statement[60], is the starting point in the learning process. This is advantageous: While teaching oriented on technical knowledge focusses traditionally on the uncritical acquisition of isolated know-how or on the related application, problems make sure that real life and work practice are in the focus. However, the focus then lies more or less on the students finding the "optimized" solution for a problem, which was posed from the outside. It is not or less important, what problem is used, or at least it is not described in particular. The student must become a successful problem solver. Of course, it is important for any lesson that the student knows and masters various patterns to solve a problem. But learning must not solely or mainly concentrate on the form of education like Wikipedia suggests for PBL. Furthermore, the education must not orient on behaviouristic educational approaches on the one hand (like the traditional theoretic subjects in vocational schools), on the other hand it must not orient on educational approaches from behavioural psychology (like in some companies: learning to act) or on more or less clever combinations of both (like in many laboratories or experimental sessions in vocational schools).

[57] This is part of a field, where research has been going on for several years in general didactics and in vocational educational didactics. It is ambitious because the (radical and the) favoured moderate constructivism cannot be assigned to the traditional scientific theoretic basic positions. Here, it is assumed that pragmatic constructivism can be assigned and is useful next to dialectics or dialectical materialism with the focus on the needs of vocational education. It cannot be elaborated on this further at this point. See Jank and Meyer, 2011, especially p. 133 f., 144, 187 ff., Rauner and McLean, 2008; Eicker and Haseloff, 2013, p. 11 ff.

[58] Noteworthy in particular is the educational concept of Roth (1957), which is used in teacher education until today, but it does not meet the necessary flexibility of real educational processes (Reinisch, 2014, p. 5-6).

[59] See de.wikipedia.org/wiki/Problembasiertes_Lernen.

[60] de.wikipedia.org/wiki/Problembasiertes_Lernen.

In PBL, it is essential that the aspiration for the lesson / for learning is demarcated and motivated. Therefore, the desired aims and contents need to be presented and to be questioned initially. In PBL, the desired student orientation gives reason to expect that the requirements / the aims and contents were demarcated and motivated together with the students by means of a learning problem. Traditional PBL lacks this component or it only gets marginal attendance – which seems more or less obvious when the problem is prescribed. It poses a danger that "simple" solutions are suggested or only "thought solutions" or "applied solutions" or some further combinations of both will be taught and learned – or in the best case, "multi-dimensional" or "multi-perspective" solutions will be aimed at[61] and that the more or less complex requirements cannot be met fully or in partially. There is the risk that the more or less complex competencies, which are needed to solve real practical tasks, cannot be acquired. The competencies are part of any realistic problem, which should be arranged more or less in learning problems. Furthermore, there is the risk that traditional PBL puts the focus of the student's concentration solely on the patterns to solve problems and therefore competencies cannot be acquired or can only be acquired marginally. At least, it seems unlikely that the student acquires shaping competence, participates in the motivation of – alternative – learning tasks or discovers and realises – alternative – processes of solution. Hence, the desired student orientation is unlikely in traditional PBL.

The student orientation, which is aimed at, gives reason to expect that PBL is primarily motivated by aims and contents – which are traditionally neglected or left out entirely but which are still internalised in the problem. It is not a minor matter in a desirable PBL what problem to solve. On the contrary: The problem does not appear from nowhere. A problem always contains more or less natural, technical or other circumstances and shortcomings or they can be expressed by means of the problem. Even and especially these need to be described.

The expectation in the student must not mainly be to attack the prescribed problem in PBL. The student must not just learn how to get along in the environment or in work practice without questioning. It must be displayed, why the prescribed problem is posed and no other problem is posed, how the problem has arisen and why it has arisen, and what effect the desired solution will have etc. In this way, the possibility for the student opens up for conceptual cognition and to shape vocational and therefore social realistic circumstances and relationships. And it matters.

So the question is posed, how a problem can become the starting point and pivotal element in advanced PBL, without having the shortcomings of the problem of traditional PBL. On that point, some illustrations follow.

DIDACTIC MODELLING: AN EDUCATIONAL CONCEPT … AND MODIFIED PBL: THE LEARNING PROJECT "WINE CONSULTING"

Several vocational education projects[62] have approved the following didactic model over the last years, which approaches the complete path from work to learning (and back to work)[63]. This model cannot be explained in detail here because of the lack of space. The learning project "wine consulting", which was planned, realised and evaluated during the project LAGL[64] together with

[61] Regarding questions on „multi-dimensional" and „multi-perspective" teaching and learning see Eicker, 1999, especially p. 210 ff.

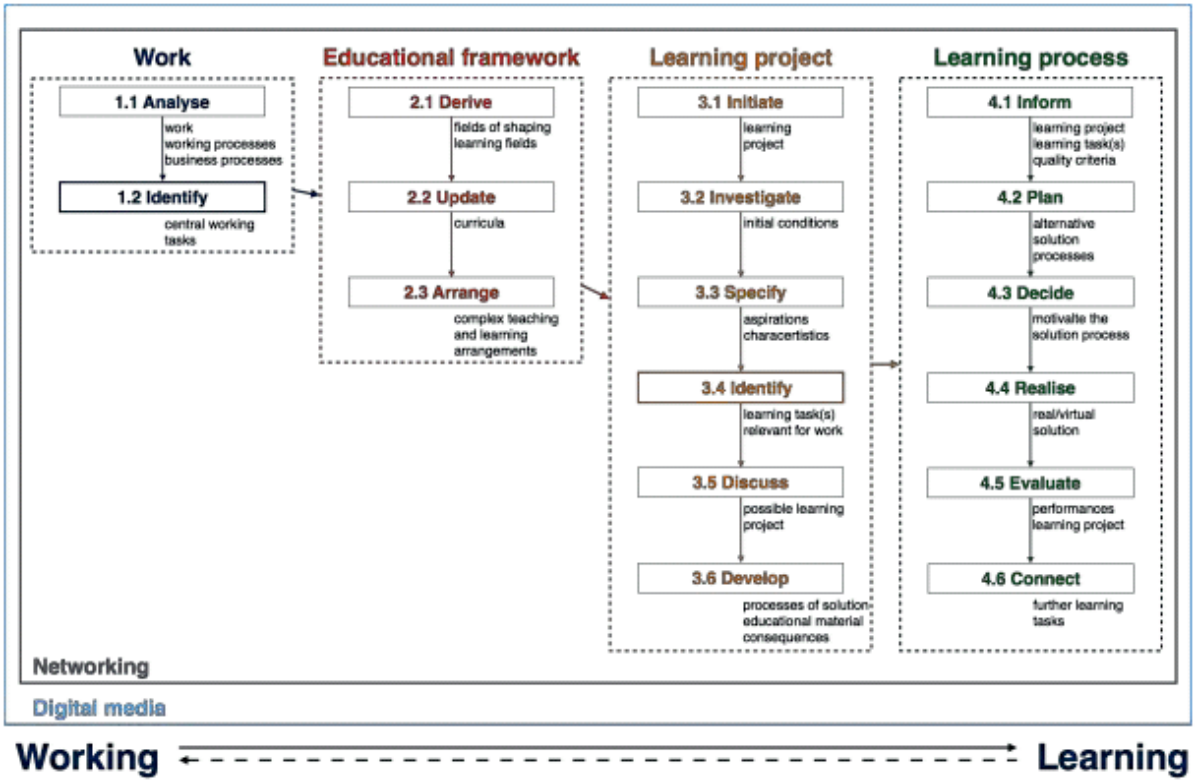
[62] See several references on the projects on www.eicker-bbw.de.

[63] To enhance and concretise earlier didactic models. In relation, see i.a. Eicker, 2007, especially p. 20 ff.

[64] LAGL: Lehr-Lernkonzept zur Aneignung beruflicher Gestaltungskompetenz in einer digitalen und vernetzten

VET teachers and trainers from companies and of course with the trainees/students[65], illustrates basic didactic considerations and instructional consequences. So, the desired PBL and the new approach on the learning problem will be presented for further discussion.

Figure 1. *Didactic model (Source: Own)*



The learning project „wine consulting" is understood – like all VET learning projects – as work(-process) oriented, task oriented, complex, planned and organised project – as an educational project, which connects working and learning practice. It connects subjects or different teaching sessions like presentations, laboratories etc. using an interdisciplinary approach and it is motivated by realistic situations. The project puts the emphasis on self-dependent and active action of the students and the outcome is a (material or immaterial, regional or cross-regional useful) product[66]. An overriding, work relevant and interdisciplinary problem is the central idea of the learning project – a learning task, which needs to be solved by the students and which enables them to acquire shaping competence.

The learning project "wine consulting" was initiated by VET teachers at the Regional Centre for Vocational Education in the VET school in Waren/Mecklenburg-Vorpommern and it was accompanied by the Siegen University (see number 3.1 in the figure). VET teachers and trainers in companies investigated the initial conditions (3.2). They specified their demands and characteristics for the pragmatic and student oriented learning project (3.3). The following overall learning task, which is relevant for work, was identified (3.4):

Lernumgebung im Tourismus und Gastgewerbe. Forschungs- und Entwicklungsprojekt. Bundesministerium für Bildung und Forschung (BMBF)/Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR). Duration: 01.07.2015 to 31.10.2016 (in English: Educational concepts to acquire vocational shaping competence in a digital and networked educational setting in tourism and gastronomy. R&D project).

[65] Prospective restaurateurs in their third year of training before their final exam.

[66] The learning project aims to initiate a realistically (in companies, society and individual) demanded and meaningful (work and educational) process, where students are supported to act in a self-determined, independent and self-active manner. This is a complex, planned, organised and product-oriented project and it connects subjects and fields of action in an interdisciplinary way and is motivated by realistic situations.

The students develop a concept for wine consulting as autonomous as possible. They discuss and describe possibilities for customer oriented wine consulting. Approaches are to be discussed and it is arranged how the wine consulting can be tested in detail. Small groups develop proposals, which are then presented to all students. The students agree on one kind of wine consulting, which is then realised during a real tasting with customers in the VET school. During the tasting or thereafter, advantages and disadvantages are evaluated. Quality criteria support the evaluation, which were formulated, discussed and motivated by the students before. During the project, students make use of prepared modern digital media to inform, analyse, structure and communicate.[67]

By means of the learning project, the students should be enabled to plan, realise and evaluate customer-oriented concepts for (wine) consulting as independent as possible.

The learning task was motivated because the students and prospective restaurateurs have contact with customers in almost every process of their work and business life. It was of utmost importance that the students were able to manage occurring individual processes of communication in a customer-oriented way. Furthermore, wine can be found on any drinks menu of any restaurant. Therefore, it is a relevant work task for any restaurateurs to have knowledge about wine and to advise the customer in this respect in a competent manner. The topic is also authorised by the national curriculum (see field 3.2) (KMK, 2014, p. 24) and therefore it was relevant for the upcoming exam[68].

The learning project "Wine consulting" and the intrinsic learning tasks were presented to the student and discussed (3.5). The students (and the teachers too) shared their interests, ideas and experience and all together decided to run the learning project in the conceptualised manner. Primarily, this meant sessions in small groups, presentation of results, role plays, realistic testing, joint evaluation of success and performance.

Thereupon, the teachers developed possible ways of solution for the problem, the learning task, and they compiled educational material. Consequences for teaching were discussed too (3.6).

An introduction by the teachers initiated the learning process (4.1). The problem/tasks and possible ways of solution were presented as a problem statement and discussed. Framework conditions of the solution process, which was planned by the students, were explored for the further course of the learning project. It was agreed upon quality criteria to check that the wine consulting was competently planned, realised and evaluated (e.g. how the customer orientation was realised). Criteria were discussed and set, which are concerned with the presentation of the concept (e.g. giving a presentation), with the role play (e.g. analysing types of customers) and with the realisation of the wine consultation (e.g. customer's satisfaction). Furthermore, it was thought about a scheme of evaluation and agreed upon it together. The students were introduced how to use educational media. It was necessary and it accompanied the process – the prepared digital media was presented and tested.[69] Anytime, the students could access the current state of the project digitally. It was agreed that every students researched at least two wines, which are in harmony with the menu, and that they upload them in the "LAGL cloud"

[67] Here, emphasis is put on the importance of digital educational media in an advanced PBL. See Eicker and Bohne, 2015.

[68] See www.kmk.org/fileadmin/Dateien/pdf/Bildung/BeruflicheBildung/rlp/Gastgewerbe 97-12-05-idF-14-03-28_11.pdf

[69] The Learning Managment System ILIAS, the cloud service and the Android-Tablet were briefly presented. Afterwards, every student could take a photo of the provided wine bottles and could upload the photos in the "LAGL-Cloud". Any student could upload wines and their characteristics individually in the "LAGL-Cloud".

until the next session. For this purpose, the students could install the developed "LAGL-App" on their smartphones or other devices or open the "LAGL-cloud" from any browser. The students were supported individually at it. The learning results were integrated in the software at the end.

As a next step, the students researched relevant information on wines (growing region, quality criteria, basics for consultation etc.). Each student brought one bottle of wine and motivated the choice (according to the relevance in their training company) – the respective characteristics of the wine were placed in the "LAGL-cloud" (4.2). The developed and compiled educational material including the digital media were consulted to develop a concept. It was discussed, which wine was chosen by the students and how the consulting should take place and should be evaluated. The students weighed alternatives, discussed and motivated their strategies and solution processes in groups.

The concepts were presented in class by means of digital media and tested by means of role plays in order to decide which concept is most suitable and why (4.3). Analysis and evaluation took place afterwards. Discussion and constructive feedback have shown that one concept was preferred. This concept seemed to be worked out in a well-founded manner, was professional and seemed practically realizable. The concept met most of the initially specified quality criteria. Nevertheless, stimulations from other concepts were adduced to further improve the chosen concept (e.g. presentation of the wine and characteristics).

The concept for wine consulting, which was presented and motivated in that way, was realised practically. Furthermore, the student's learning results were transfered to a digital educational software. It was programmed in a way to allow the teachers, students and prospective student to learn with it (4.4).

The learning project and the performance by students were evaluated together (4.5). Likewise as a summary, suitability for practice, customer orientation and possibilities to improve the learning project and the wine consulting were discussed. A specific questionnaire was developed with mostly closed items to evaluate the learning project, where the intervals were scaled according to school grades.

Finally, it was discussed how to link the project to the lesson in the future (4.6): Which questions remained open and can they be dealt with in future learning projects? What additional learning tasks derive from the learning project? For example, several students answered that they would like to learn in a learning project how to plan, realise and evaluate a conference.

INSTEAD OF A SUMMARY: TWO TABLES ON THE EDUCATIONAL PRINCIPLES AND ON STUDENT ORIENTATION IN THE PLANNED PBL

It seems important for a successful organisation of PBL with a central problem (the task) to put emphasis on the question how teachers should plan, realise and evaluate with the aim that students are likely to acquire the desired shaping competence on their own through the problem/the task. Thus, the first following table summarizes what the students should investigate and do before the learning project, during the project and at the end of the project, and how the teachers should support the activities of the students. The second following table describes the desired student orientation in PBL of vocational education.

Table 1. *(Source: Own)*

What teachers should consider and do…	**What students should investigate and do**
Before the introduction of project in class (only for the teachers)	
The teachers investigate/discuss/motivate/formulate/prepare … • … their / the teacher's aspiration for the prospective learning project – the result is a general orientation (which is oriented on the acquisition of vocational and general shaping competence by the students) – in detail, it is described – mentally or written – what the characteristics of the aspired competence/shaping competence are and which characteristic are essential for teaching and learning • … the conditions for working, teaching and learning in the vocational school, in the companies and in other (regional) VET institutions, which are linked to the school or to the companies; administrative guidelines need to be consulted too; possible partners of the learning project must be informed • … determine the learning field which the learning project will or should be oriented on • … a general problem of work – better yet, two or three general problems of work, which can be "transferred" to a general learning problem or to several general learning problems. It is justified • how the solution of these allows the students to acquire work relevant competence/shaping • competence. • … the general and vocational significance of the educational, working and learning competencies, which can be acquired by the students. • … the description(s) of alternatively possible problem statements in a manner which is understandable for the students – in such a way that the expectations in the learning process and in the learning results are clearly expressed (e.g. alternative processes of solution need to be • investigated and to be used, the learning outcome (the product) needs to be developed and to be • presented to the "customer" in concrete terms or through PowerPoint, the progress and the results of the learning process need to evaluated in a certain way etc.) • … the information for the students at the beginning of the learning project, especially possible ways to present the problem statement • … how the solutions of the problem can be realised in the vocational school, in the companies and in other VET institutions and through their connections with each other (e.g. preparation of internet access, availability of laboratories and of equipment for experiments etc.)	

At introduction in the class	
The teachers present all possible general problem statements to the students and offer the investigation of background information (information of the learning field, which are relevant for the problem)	The students investigate the addressed learning field with the help of the offered possibilities to get information (e.g. with a Learning Management System, with informational sheets and/or books, and also with teacher`s presentations) – especially all possible general problem statements are acknowledged and they develop a first understanding of them
The teachers initiate and, where required, moderate a discussion of all the possible general problem	The students discuss the relevance of the offered possible general problem statements – if necessary, modifications and other connected problem statements are presented and motivated
The teachers ask the students to decide on one or more problem statements and motivate the decision. This can be the general problem statements or other, modified problem statements; the result should be presented in written form.	The students decide on one or more problem statements and motivate it – they agree upon general definitions of tasks during the prospective learning project and formulate them understandable and in a concrete way.
	The students inform their companies and other participants on the prospective learning project
After introduction in class	
The teachers think of possible alternatives how the students could solve the general problem as a series of sequences (e.g. as a flow chart or other sequence plans)	
The teachers motivate the significance of educational, learning and working competence for the students – the competences, which the students can acquire in the single sequences.	
The teachers think of possible ways how students create a sequence plan (for alternative solutions and also for single sequences), where possible strategies to solve the problem are presented	
The teachers initiate and moderate activities, where the students create, discuss and motivate the sequence plan to solve the problem	The students acknowledge the presented alternative sequence plans to solve the problem, discuss their relevance and maybe create (if necessary in small groups) own sequence plans to solve the problem. They agree on one (or more) plan(s) to solve the problem and motivate the decision – the result(s) will be recorded in writing by the students (e.g. in a flow chart or in another way)

After rough (sequential) planning to solve the problem	
The teachers create descriptions of (alternative) possible partial learning problems for each sequence – understandable for the students (taking into account that the solution of all partial problems add up to a solution of the whole problem of the learning project)	
The teachers think of possibilities how the (alternative) partial problems can be made accessible to the students.	
The teachers initiate and moderate a discussion on the partial problems and on the decision which (partial) problems to solve.	The students acknowledge the proposed – alternative – partial problems, discuss them, bring in own ideas if applicable, agree on one partial problem to solve and motivate the decision – the results will be recorded (in writing)
The teachers make sure that the students acquire the aspired competences while approaching the planned (partial) problem.	
The teachers create descriptions for (alternative) possibilities how students can solve the (partial) problems.	
The teachers investigate possibilities how to make the (alternative) solution processes accessible to the student.	
The teachers make sure that the students acquire the aspired competences while approaching the planned solution process to solve the partial problem.	
The teachers initiate and moderate a discussion on the (alternative) solution processes and on the decision which solution process to use.	The students acknowledge the proposed – alternative – solution processes to solve the partial problem, discuss them, bring in own ideas if applicable, agree on one (or more) solution process(es) to solve the partial problem and motivate the decision – the results will be recorded (in writing)
Before solving the partial problems	
The teachers compile and prepare, if necessary: possible suggestions, educational material and experiments etc. – to help the students in their process to solve the problem	
The teachers discuss how to make suggestions, educational material, instructions for experiments accessible to the student	
The teachers inform the students and give suggestions how to solve the (partial) problems and make any educational material and experiments accessible to the students.	The students acknowledge the suggestions to solve the problem and the relevant material and instructions for experiments to solve the problem (if applicable by means of new media, like information and Learning Management Systems on the Internet etc.); if needed relevant knowledge and skills need to be acquired
The teachers discuss and present: possible alternatives of reflection, which accompany the solution process to solve the problem, if necessary corrections and evaluation of the solution process(es).	
The teachers initiate a discussion on reflection and evaluation in the learning project and on the decision, which procedure to use.	The students acknowledge the proposed alternatives for reflection and evaluation, bring in own ideas, agree upon a procedure for reflection and evaluation and motivate their decision – the results will be recorded by the students (in writing)

During the solution process to solve the problem	
The teachers initiate and moderate the solution processes to solve the partial problems	The students solve the partial problems and therefore solve the whole problem – the progress in the solution process is reflected from time to time and if necessary, corrections are made
The teachers give suggestions during the partial learning processes if needed	The teachers are seen as experts and their competence is used.
If necessary, the teachers support the documentation of the results of the solution process to solve the partial problem	If necessary, the students create a documentation of the learning project.
At the ending of the solution process of the whole problem	
The teachers instruct and support the reflection and the evaluation (if needed) of the whole process and if needed, of the whole documentation of the learning project	The students evaluate the whole solution process and its documentation; maybe external participants can be included into the reflection („customers", experts (the teachers and others)) – if needed, a rating/grading of the student's performance will be done

Table 2. *(Source: Own).*

In advanced PBL, student orientation means that…

- the students do not simply accept the pivotal element(s), the prospective problem(s), from the teachers, but that they take part in motivation and identification of the problem(s) and in the decision-making process – connected especially to the investigation and the demarcation of central working tasks of the (prospective) vocational activities in the profession of the students.
- the teachers investigate possible alternatives for the central problem statements (tasks) before and they make these problem statements accessible to the student in an understandable manner – considering the general relevance which exceeds the vocational activity(-ies) of the students and which has sustainable significance(s), and considering the respective educational standards (the subjective teaching and learning abilities of the teachers and students, the conditions for teaching and learning in the vocational school, in the companies and in other regional and maybe also supraregional educational institutions and on the internet etc. – in other words: using various abilities and conditions of different educational settings in a „network" to teach and learn).
- the teachers investigate possible solution processes to solve the problem beforehand and they make these accessible to the students in an understandable way – having complex problems means to point out a useful partition into partial problems.
- the students acknowledge possible alternatives of the solution process to solve the prospective problem/s or explore alternatives for themselves. They discuss advantages and disadvantages of the alternatives and agree upon one solution process and motivate their decision.

- the students not only acquire relevant (professional) knowledge and/or connected skills while solving the problem(s), which derive from tasks relevant for work and are more or less complex, but they are able and should acquire relevant shaping competence, enabled through alternative problems and solution processes.
- the teachers prepare and arrange the learning situations, where students are encouraged and guided to solve the partial problems (and therefore the whole problem) on their own – the teachers support as initiators, moderators, experts, counsellors etc.
- the students solve the partial problems and therefore the whole problem more or less on their own – they evaluate their success during the solution process by defining quality criteria from time to time (formulate hypotheses), monitoring them (accuracy of the hypotheses) and changing them if necessary.
- the teachers prepare possible educational material beforehand (material for information, experiments (no "recipes" but stimulations for more or less open solutions), material to support documentation and monitoring, material to support reflection and evaluation etc.) and they make this material accessible to the students – using new, digital media can be useful in this respect (e.g. a Learning Management System).
- the students do not only solve the partial problems and therefore the whole problem
- „theoretically" but also „practically" – by realising the solution of the problem under the
- given teaching conditions, in (prospective) work practice of the students (e.g. installation of an electronic system at a weekend home) or in the school laboratory (e.g. installation of the system with laboratory equipment and experiments) or by means of further abstractions of reality (designing graphically or depicting orally and discussing – also depending on the given competences of the students)
- the students present their solution(s) of the problem(s), they discuss and evaluate the relevance of the problem solution(s) or of the partial solutions and of the learning progress – it makes sense to do this together with the person who posed the problem (the teacher, the client/customer etc.).

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STUDENT CENTERED LEARNING

Larisa Bugaian, Dr. hab., prof.
Technical University of Moldova

Abstract: Student-centred learning is an educational conceptual framework that is currently actively promoted. Today higher education is profoundly different from what it was a few decades ago. The idea of placing the student at the center of the study process brings profound changes in higher education system. Labour market and the globalisation process require a thorough rethinking of the educational process and chancing of the learning values. Student becomes an active participant in the learning process. The main aim of such approach is not only to assimilate the curriculum but to develop professional skills that market demands. The students manage independently their own learning. All this leads to a shift paradigm, necessary at the micro level – in teaching, learning and assessment. Adoption of student centred learning changes the roles and responsibilities of the teacher and student. Student centred learning also involves changes in the role and responsibilities or the learners and students, in the program materials delivery and in the learning process itself. Learning becomes personalised, students engage in different ways and in different places. Students benefit from individually paced, targeted learning tasks that formatively assess existing skills and knowledge and that address the student's needs and interests. Learning is based on the outputs of the knowledge and engages students in their own success, students support one another's progress and incorporate their interests and skills into the learning process.

Keywords: student-centred learning, teaching approach, studying, learning process, active learning.

Student-centred learning has been actively promoted as an education concept lately. The idea of placing the student at the core of the education process has been topical in the recent years, given the significant change of the higher education system, which is currently way different from what it used to be a few decades ago. This model is however often underestimated by political decision-makers, the higher education institutions, and the teaching staff themselves.

The engagement of the labour market and the globalisation process call for thoroughly rethinking the processes that take place in the classrooms, as well as the value of the teachings. It is not just about fashion; there is a strong rationale behind this need for changing the paradigm at micro-level, in the teaching, learning, and evaluation process.

A new dimension in the education process is student-centred learning. This concept relies on a new approach from both sides – the teachers and the students – and implies "personal autonomy" of the students. When they enter higher education, students have an adult age, which means they should be treated as responsible individuals, who are concerned about their future career. They are not any more consumers who only have their own interests. This ontological perception of students as citizens is justified by two reasons: first of all, the modern society needs higher education, free citizens with critical attitude, secondly, the lifelong learning approach requires citizens to develop their personal and professional interests in a more independent way.

The paradigm of student-centred learning requires shifting the education method from teaching based on memorising to education based on learning. Education should be seen as a constructive process of cooperation, a democratic process between teachers and students, as well as between students themselves. This involves two types of implications. In practical terms, education has to be organised in a different way. The education programs and the university life should focus more on students' skills. Concentration on optional courses, on group work, an optimal relationship between the teacher and the students increase the number of education and carrier counselling services. At a higher level, the teaching and learning practices should be changed. Students should learn to become critical citizens in order to challenge the status-quo.

Student-centred education requires effective evaluation of the teaching methods and participation of students in the development of such methods. The change of teaching practices infers eventually a change in the teachers' attitude. It is essential that the academic staff is trained in the new teaching-learning methods; there needs to be continuous training throughout the teaching process. Student-centred education is a specific paradigm, which calls for a shift from the lecturer-based approach to a more interactive and more practical teaching/learning method revolving around the competences of the learner. The teaching staff should no longer look at and treat students as consumers or as individuals who just reproduce knowledge. This approach should be at the core of the higher education system's mission and a basic method for student education.

The business environment of the 21st century calls for a radical change in the education of future professionals. The university should produce graduates who are ready to face the future and to meet the current requirements of the business. The university should facilitate learning through means and methods aligned with these requirements. The way of studying and the learning capacity of each student is different, what is similar though, is the fact that all students wish to gain skills in order to have access to the labour market.

However, this does not mean that all education institutions will have to use a single philosophy or method. Each of them has to reach a fundamental understanding of the competences that the future professionals need to achieve and how to reach this objective. Student-centred learning should be learning based on activity (i.e. project-based, case-based, problem-based learning, etc.).

It is necessary to ensure the quality, the regulations and the policies for students' participation in the higher education process at national level. Quality assurance and alignment to the "Standards and Guidelines for Quality Assurance in the European Higher Education Area" should be based on the results of learning, evaluation of teaching, and participation of students in the education process.

Understanding the importance of this paradigm, everyone understands that change requires a lot of work and resources. Even if a number of stakeholders are willing to implement this model, the paradigm shift cannot happen overnight. The main issue is that the concept of learning competences is not understood and applied properly. The substantial approach for stimulating change resides, first of all, in the development of the staff and the special funds for changing the teaching practices.

One may conclude that not all universities stimulate the shift towards a student-focused higher education system. However, before reaching such a conclusion, some other aspects should also be assessed. One aspect is that academic freedom could mean that universities

may not impose or force student-centred education. In this case, it might appear that the teaching professionals do not promote the change. However, experience shows that there is a consensus among the students and the teachers about the fact that student-centred education is a good thing. University staff states clearly that the attitude of the students, the staff, and the higher education institutions do not represent barriers to change. Student-centred education should be the natural state of the education process; teachers perceive this as one of university's core missions.

The teaching methods are not just dimensions of the study process, but rather an integral part of the teaching concept. The starting point of learning should not be the inputs but rather the outputs of the education process, implying the competences. Therefore, the design of the curriculum may only be established after the final product of education was established.

Another requirement is that teachers should accept the responsibility for establishing the way in which the learning results should be attained. Therefore, the role of the teacher should shift from developing analytical programs describing the contents, as a major responsibility, to developing a dynamic design of the curriculum, which would also include the teaching-learning methods.

The methods for evaluating the results should also be changed. Only one evaluation method at the end of the course is not enough. Students should be given as many opportunities as possible to prove the learning results. Eventually, the learning process is as important as, if not more important than, the content to be learned. Learning should be appealing.

Certainly, in order to implement the student-centred education method and make this a part of the education system, a number of things need to happen, as follows:

• students should be treated as "drivers" of the study process;

• teachers should be promoted and use adequate teaching methods;

• suppliers of education products (books, software, hardware, rooms, etc.) should support the teaching staff in implementing student-centred education;

• there should be an actual academic autonomy in decision-making about the way and the methods of teaching, with a view to creating the competences demanded by the labour market.

The conceptual frame should rely on the hypotheses of the following principles of student-centred education:

• *Learning is customized:* customized learning acknowledges that students study in different ways and in different places. Students benefit from learning, individual tasks and pace. There is differentiation in the assessment of the existing skills and knowledge. Students' needs and interests are different.

• *Learning is based on competences:* Students are promoted when they show proper knowledge rather than when they attend the necessary classes. Learning happens anywhere and anytime: Learning happens outside the ordinary academic hours and even outside the academic year; it is not limited to the classroom.

• *Students take ownership in learning:* in the student-centred education process, students get involved in the education process; they enjoy their success and engage their skills and interests in the learning process.

Currently this approach acquires a new dimension to which other components are attached, such as the teaching strategy, specialised classes, programs, departments, and institutions. On a large scale, a number of descriptors are used, which bring some precision characterising the student-centred teaching.

The integration of students in the process of institutional change may take place in different ways, the focus being on the student's voice or on student's direct involvement. In the first case, the final decision is made by the institution, while the student, as an evaluator of the institutional processes provides feedback. In order to make improvements and changes, students' opinions are taken into account, and final decisions are made at institutional level.

Another approach treats students as partners, co-creators, and experts. Students are cooperation partners in providing information about professional development. The decisions on the development of the institution and the institutional processes are also made at institutional level.

Another, more modern and efficient approach in implementing student-centred education is students' engagement in the process of institutional change. This happens when the student is treated as an agent of change. Students are active participants in decision-making, with a view to influencing the change and development. Decisions are made jointly with the academic staff. Students, in their capacity as change agents, are partners in the professional development. Students also promote decisions on actions at institutional level.

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TRACK 4:

The impact of ICT on student-centred problem-based learning, teaching and curriculum development

TRACK CHAIR:
RALPH DREHER
UNIVERSITY OF SIEGEN

DEVELOPING PBE-ORIENTED CURRICULA IN THE FIELD OF ENGINEERING SCIENCE

Ralph Dreher, Chair of Technical Vocational Didactics
University of Siegen

Abstract: The paper will at first show, that "Engineering" as vocational profession will not only develop new products and services, but also will be a big part of changing possibilities and consequences. So Engineering is in first a technical discipline with roots in natural science, but it has also a part of social responsibility. The main thesis is, looking to this fact, that future engineers must learn in their study courses both parallel: Constructing and designing AND Responsibility and social communication. As benchmark for this type of curriculum was formulated the "Leonardian Oath" and as consequences, it was developed a PBL-based curriculum for engineering science. The core idea of this concept is, that students only can learn responsibility and social communication by REFLECTING their own construction design-work.

Keywords: PBL, PBE, Leonardian Oath, Responsibility, Social Communication

THE "LEONARDIC OATH" AS BENCHMARK OF CURRICULA IN ENGINEERING SCIENCE

Engineering work means to create the technical requirements for a world without famine and epidemics but with open access to fresh water and information, education for all and more equality and sustainable development – so engineering work should be oriented and pledged towards the following two guiding principles:

• The "transfer competence" to realise a solution and

• the "responsible competence" to be aware of the effect of this solution for the problem itself as well as for the social, ecological and economic environment.

That means, the core task of engineering work is to be realised as a dualistic function. This idea is not a new one, it is the basic rule to realise technical impact assessment. However the ethical component is a future-oriented one, concerning to our worldwide situation. It is also a clear fact to note that engineers often work to renew or to create "over engineering" products only to have incentives, which attract customers – an essential lubricant of the capitalism, which dominates political decisions.

Concerning engineering educators, this idea implies that Engineering Education has to amalgamate this dualism by:

• designing and realising curricula, which will enable to develop both, "transfer" and "responsible" competences on the basis of defining aims, learning outcomes and systematically structured and linked contents of the study-programmes, and

• creating teaching and learning styles, which facilitate students in all their diversity to develop their qualification in transferring and designing.

Future-oriented engineering curricula must mirror that dualistic function. Looking to this, it seems be useful, that there is a common benchmark for the processes of curricula development, course-design and accreditation.

So as benchmark for designing new Curricula in Engineering Science (and looking to the "Oath of Hippokrates" in medicine) a "Leonardic Oath for engineers" was created. Looking to the millennium goals of UNESCO (UN/ECOSOC, 2012), this idea follows the main requirement of Engineering Education, that engineers must become more concretely support to focus their work by using the categories of "sustainability", "capacity building" and "society faced".

The actual form of the "Leonardic Oath" reads as follows:

"Every Study-course of Engineering must be based on the idea, that engineers will be educated to use their technical knowledge with their design-responsibility oriented towards the principles of

- *ethical egitimation,*
- *sustainability and*
- *societal checkability." (Dreher, 2015 pp.714)*

WHAT MEANS PBE?

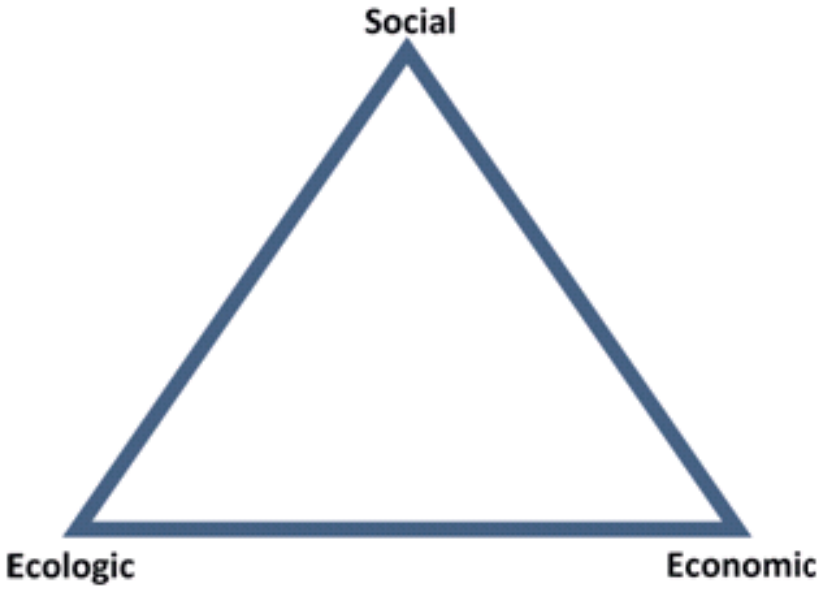
Problem-Orientation as Key-Function

To realize the training in nature and engineering science and to develop parallel the social competences of young engineers as it was given by the "Leonardic Oath" means in core, to give the students a chance, to develop and to reflect an *own (!)* solution.

To give them a chance for this, their study-courses must be designed as courses,

- which are not offer knowledge, methods and (discipline-typical) solutions, but which
- *offer a problem (!)* in line to their specific development-level as main content. In a way with a high level of self-directed-learning and supported by micro-teaching units, which will be offered for each course, the students will develop their own solutions including an internal reflection using the "triangle of sustainability" (Fig.1):

Figure 1: *Triangle of sustainability*



Problem-Solving as key for Competence-Development

In the general actual meaning, "Competence" as Main-Aim of Education means to develop the possibilities of the students, to solve *self-organized* (Erpenbeck and Heyse, 2007) problems as design oriented task (Rauner et.al., 2009).

So students (in accordance to Fig.1) must have the chance, to train their skills and possibilities,

- to understand a problem in their discipline and
- to create innovative and responsible self-solutions for by
- using the factors of ecologic compatibility, economic feasibility and social acceptance.

During this process, students will grow up the base of competence – an "implicit" or "tactical" knowledge, which they are not directly able to verbalize, but which is steering their decisions, meaning und doing (Neuweg, 2004).

So study-courses, which will follow the "Leonardic Oath" and his general idea – to educate engineers, which are good technicans and innovate parts to develop our society – must work problem-oriented, because only in offering a problem as didactical base, gives the students a chance for a parallel development of their discipline and social competences.

Reflection as a main-part of Education

A great misunderstanding by using problem-oriented course-forms is to give the students the possibility, to develop solutions, which are working, but not to use the benchmark of sustainability as a main topic for a reflexion, if the presented solution will be really the Best-Case-Solution.

The process of Reflection will be the most important part of a problem-based study-course – especially the moment, when the students will get impulses for their inner reflection during the process of outside-reflection (so that moments of "assimilation" during the project-work in the with the example of the actual problem will be initiate in best-cases problem-independent moments of "Accomodation"; see Piaget, 1992).

Coming to these moments of Accomodation means, to change or better to develop the factors of behaviour of the individual students – and in this moment, the process of Problem-Based *Learning* (PBL) becomes a process of Problem-Based-*Education* (PBE).

PROPOSAL FOR DEVELOPING PBE-ORIENTED CURRICULA

The main question to develop study-courses by using the general idea of PBE is how a PBE- oriented curriculum can be designed.

Because only with such curricula as base, the following developing steps (e.g. Lecturer-Training, accreditation processes, course-plans, examination forms, footprints for the buildings) are able.

So the following steps A-D will be understood as a general proposal to develop PBL-oriented Curricula:

Criteria for Engineering-tasks as Course-Content

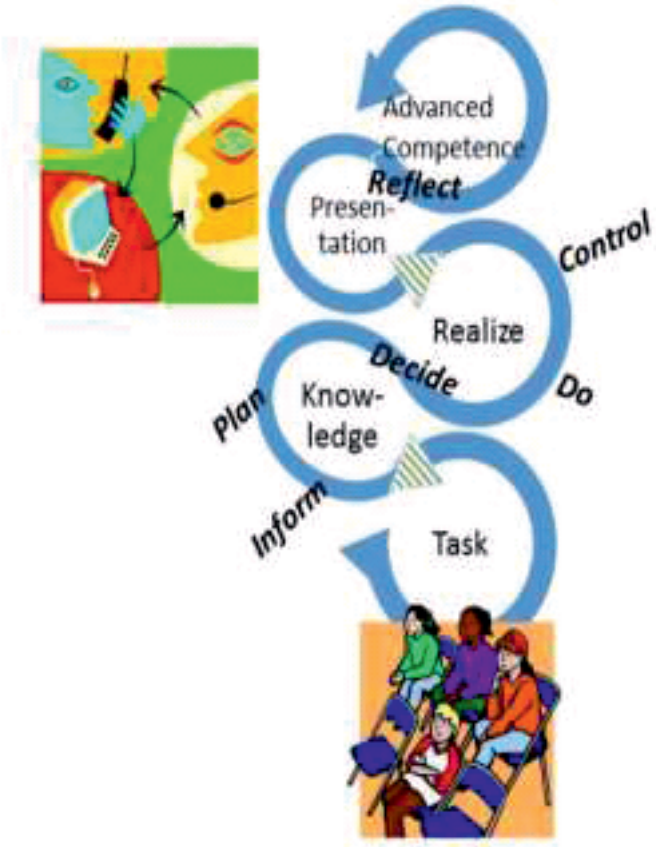
Looking to the question above, it seems necessary, that the courses in Engineering Education will directly base on engineer-oriented tasks. The reason: Only in this case, the

students will develop or create an individual solution, which can be reflected by using the criteria of the "Leonardic Oath". The "Art" of curriculum-design or better of transformation a curriculum in courses, is to find tasks, which guarantee at first a reply intersection with the specific engineering knowledge of the task-oriented part of engineering work and which further allows a lot of *specific* solutions to reflect the design competence (as collective name for the possible of a human being, to understand and to design an own responsible solution) of the students. As a result, the task must integrate the possibility of a "multidimensional solution space".

Course-structure

A typical structure of such a course will give in Fig. 2 and will show that academic courses in the case of developing design-competence must follow the principle of a fulfilled action with the steps Inform, Plan, (Decide), Do, Control and Reflect:

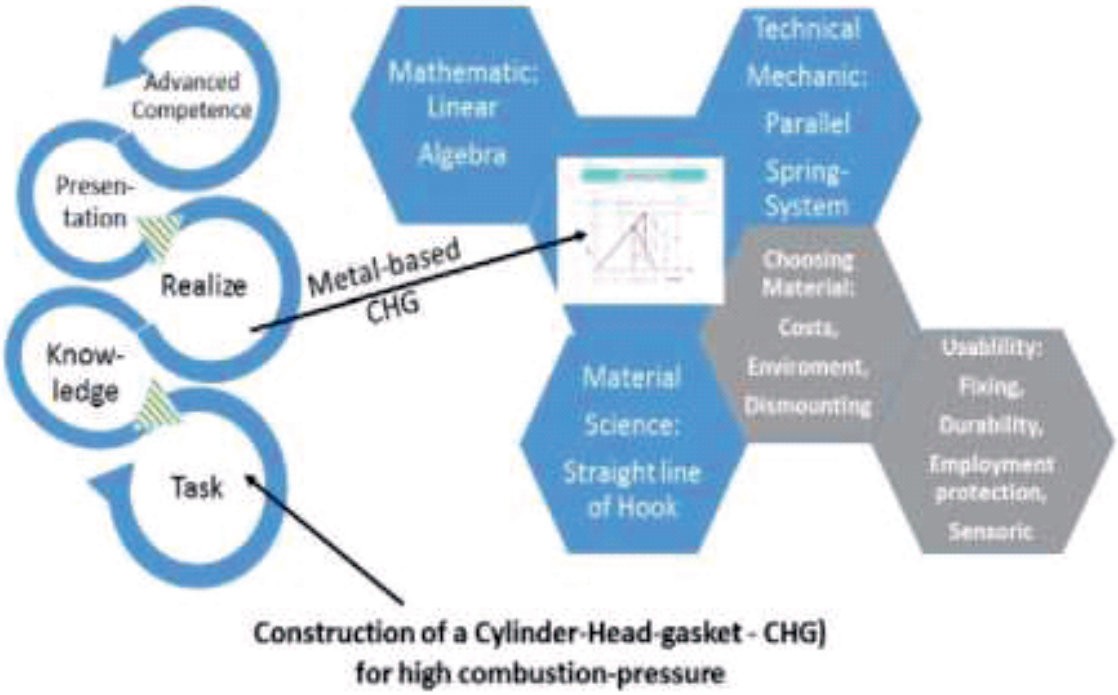
Figure 2: *Course-structure*



Combining task and specific knowledge

After choosing an identified part of engineering work as course-able task (in most cases by using the methods of Vocational Science, the knowledge-content of the case must be analysed to identify the Micro-teaching-units behind the task. Fig. 3 shows this using the example to create a new cylinder-head-gasket for Diesel-engines with a very high combustion-pressure as engineering task:

Figure 3: *Example for an education-arrangement*



Preparations

Working with concepts means to shift the main part of work in academic teaching from the part of teaching in the part of planning, because during the phase of preparation the teacher has to

• find realistic engineering tasks, which (in sum) guarantees that the whole study program, with all its topics of specific knowledge of the engineering-discipline will be broached;

• define an evaluation criteria for the self-controlled part of the students for the end of the whole phase of „Knowledge and Realize" (Fig.1);

• create the micro-teaching lessons together with the colleagues from the other academic professions (like „Straight line of hook" in Fig.2); plan the phases of presentation and in main for reflection by using special methods for self- and outstanding-reflection.

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USING VISUAL LEARNING TOOLS FOR TEACHING CRIMINAL LAW

Mihaela Vidaicu, Faculty of Law
Moldova State University

Abstract: This article is focused on the analysis of introducing visual tools in teaching criminal law to second year students. The author of the article underlines the need for changing the approach towards students' learning and adjusting the teaching tools in order to facilitate the development of legal reasoning skills of future lawyers. In particular this article is focused on analyzing the impact of film clips on students' learning during criminal law classes. The findings included in this article are based on the authors' own research conducted during one year through engaging students in various exercises and exposing them to different interactive teaching interventions. The author argued that film clips may help law students to gain legal reasoning skills. As a result the assessment showed that they help students to understand better the context, to identify the facts, to establish the legal issue and to apply the appropriate legal norm. In addition, author's research assessed students' attitudes and ways of thinking while solving hypothetical criminal law cases.

Keywords: criminal law, visual learning tools, film clips, legal reasoning skills, interactive teaching interventions

WHAT IS THE MAIN GOAL OF LEGAL EDUCATION?

In 2003 I started my academic career at Moldova State University teaching Criminal Law to 2nd and 3rd year students. During this time the legal education system passed different reform periods all aiming at achieving Bologna process reform goals.

Before 1990s Moldovan legal education system was concentrating more on the development of knowledge among law students and paid little attention to the skills needed of future lawyers. The failure to acknowledge students' needs led to the lack of skills oriented curriculum and outdated teaching methodology used in the classroom. The weaknesses of the old system surfaced along with the Bologna process. More favorable conditions for challenges and improvements were created. However, the approach of leadership and law professors often facilitates the use of old fashioned teaching methods and techniques. I guess this situation was and still is triggered by the lack of answer to an important question: what is the main goal of legal education?

Part of the problem with clarifying the goals of legal education is that the world of increased specialization, coupled with the innumerable fields of law that await law school graduates, make it impossible for three years of law school (four years in Moldova) to prepare students to practice competently in every field of the law. The requisite knowledge and skills are simply too diverse. There are several logic responses related to the law schools' general education mission and legal market's demand for lawyers with very specific and extremely diverse types of competences. Law schools could either: (1) prepare students to provide a limited range of legal services; (2) prepare students for very specific areas of practice or (3) help students develop fundamental competences common to multiple practice areas, counting on students to acquire specialized knowledge and skills after graduation. (26, Stuckey R. and others, p. 41) It seems that the third option is the one many law professors agree with in

Moldova. However, the question is are students equipped with basic knowledge and skills required to start the specialization after graduation? The results of the admission into the legal profession exams show that students have good theoretical knowledge but they still lack minimum skills need to practice law.

On the other hand, authors of Carnegie Foundation's report on legal education consider that the core goal of the legal education should be the same as all other forms of professional education, which are, "to initiate novice practitioners to think, to perform, and to conduct themselves (that is to act morally and ethically) like professionals". Toward the goal of knowledge, skills, and attitude, education to prepare professionals involves six tasks: (1) developing in students the fundamental knowledge and skills, especially an academic knowledge base and research; (2) providing students with the capacity to engage in complex practice; (3) enabling students to learn to make judgments under conditions of uncertainty; (4) teaching students how to learn from experience; (5) introducing students to the disciplines of creating and participating in a responsible and effective professional community; (6) forming students able and willing to join an enterprise of public service. (27, Sullivan W.M., Colby A., Wegner J.W., Bond L., p. 22) It make sense, as legal education is not only about knowledge and skills, it also aims at educating young legal professionals.

Taking into account the above mentioned I would like to stress two crucial goals of the legal education that are often overlooked, if not altogether missing in our current law schools: fostering critical thinking and educating a new generation of lawyers through promoting social justice. Since the primary goal of the legal education is to prepare students to practice the profession, law schools play an important role in ensuring that students obtain the knowledge, skills, and values necessary to become competent in their jobs and capable of upholding the ideals of the legal profession. (13, Hovhannisian L., p.3) In accordance with both scholars and employers, a good lawyer should be able to recognize legal elements in the surrounding reality, communicate one's thoughts in a straightforward, accurate manner, both orally and in writing, find the necessary information fairly quickly, argument, make inferences and recognize his place in the team, in addition to solid background of knowledge about the legal structures. (25, Sliwa J., p.15).

In seems that one way to solve systemic issues related to quality of legal education is the correct understanding of the legal education goal. This potentially would lead to the design of the appropriate curriculum for the future lawyers.

However, so far law schools' offers often do not match the market demand in Moldova as in many other countries thus creating a deficit of practitioners well equipped with knowledge and skills. On institutional level, law professors use different interventions in order to achieve the goal they consider right for their own discipline. That is why while some law professors try to bring law practice in the classrooms others consider the theoretical background the only valuable achievement of a law school. In these circumstances the Moldovan law school makes small steps in increasing its teaching performances and this discrepancy leads to the lack of a well grounded policy for preparing skillful lawyers.

WHAT HELPS STUDENTS DEVELOP/IMPROVE THEIR LEGAL REASONING SKILLS?

I tried to change my approach to the teaching-learning process and to observe students' reaction to teaching interventions I used having in mind the skills a lawyer should have in order to practice law in Moldova.

The discipline I teach, Criminal Law, is one of the main substantive courses in the MSU curriculum, fundamental for the formation of the future lawyers. It is divided in two big parts: general and special and are taught to the second and third year students. The main objective of the course is to make students learn about criminal law principles, elements of crime, types of punishments and criminal liability particularities as well as to apply the rule of crimes' classification and tendencies of the judicial practice. The discipline is perceived as an interdisciplinary course focused on the study of crime from two main perspectives: legal and social. This approach allows educating students to analyze criminal issues from a more comprehensive perspective and to create their own understanding of the crime classification and punishment goals.

I was aware that while teaching Criminal Law it is important to show maximum diligence and serious approach towards substance knowledge and skills gained by students. I knew that many professors use to develop students' capacity to read and identify appropriate criminal norm but do not encourage students to be creative and to think out of the box. Also, students are used to simply reproduce what they memorized without motivating their legal opinions or legal analysis due to lack of legal reasoning skills.

During several years I tried to involve my students in different types of exercises, receiving their feedback and provoking them to explore new ways of learning. However, I noticed that exclusive use of traditional methods does not help my goal of reaching each individual student and exploring the entire substance of Criminal Law. I felt the need to use new tools designed for Criminal Law course with new elements that would facilitate legal reasoning development. I selected film clips analysis as teaching intervention, innovative for Moldova law schools, in order to observe its impact on students learning, particularly to measure their impact on development of the legal reasoning skills.

I selected this teaching intervention to provide favorable and interesting environment for the law students to explore their ways of learning. The film clips selected for exercises covered specific criminal law issues. The project was conducted during the second semester of 2012 during criminal law seminars. 25 sophomore law students from the Law School of the Moldova State University agreed to be part of the assessment and submitted their answers and papers during the course of the semester.

To diagnose what kind of skills my students lack I asked them to write an essay which referred to the analysis of the "Need of the reasonable risk as a circumstance that excludes the criminal character of the illegal act". This issue is considered to be one of the most discussible in the criminal law theory and very rare used in the Moldova judicial practice. In order to fill in their practical part I suggested them to use cases exiting in other countries or to develop their own example based on their theoretical knowledge. The majority of students fulfilled the requirements. However, I noticed that the concept of the essay is still misunderstood by my students even after conducting some preparatory exercises (as preparation of the arguments, identification of the issue, legal analysis etc.). Even if students followed the instructions the level of their creativity is acceptable. The majority of the essays lack the analysis of criminal law issues and included only the concepts and classifications learnt from books. The case analysis in most of the essays is limited to the facts identification. The arguments brought by students to motivate their own opinion are very broad. From my discussions with students I noticed that the most difficult for them was to find and to write the arguments appropriate for the topic of the essay, to find and describe the case suitable for the theoretical part. However, the majority of them were able to write their conclusion very concrete and reasonable. The conclusion was the main proof of their creativity and contribution to the essay.

WHY FILM CLIPS?

My initial claim was that clips analysis and discussions used in the classroom can facilitate students' capacity to develop/improve their legal reasoning skills needed to a future lawyer. I started from the knowledge that students are used to solve hypotheticals during my criminal law classes and to discuss the applied legal norms but they are not used to motivate their solutions and make legal statements.

I decided to make use of film clips as visual hypotheticals to encourage them to better understand the facts and to make legal analysis of the visualized issue, bringing arguments and legal grounds. My belief was that the use of visual hypothetical can facilitate/encourage/promote the development of legal reasoning skills better than other teaching interventions.

While researching the use of film clips in teaching criminal law and the outcomes they can lead to at the end of teaching and learning process, I noticed that the majority of scholars that use this intervention as a measurement tool, despite very few disadvantages, focus their findings on the positive aspects of their experience. More often they explain that this technique helps law students build their thinking and visualize the concepts given by the legal doctrine, facilitating the process of understanding specific rules on how to apply law to real cases. That is why this is an effective way to help students develop their critical thinking and, in particular, legal reasoning skills.

Being more specific, with reference to criminal law, after using film clips as learning tool, students should be able to diagnose the criminal behavior and to analyze the elements of the crime, being addicted to the story and associating the law requirements to the specific case. In this way, they should be able to provide well grounded opinions on each case presented and motivate their legal solutions.

However, I would like to address several questions in order to underline the appropriate background for my own research, based on the statements made by different scholars.

The basic requirement for a professional lawyer is to understand how to apply the law and how to use the facts. However, a good lawyer needs more skills, based on his/her way of thinking and built through exercise. So, what are the legal reasoning skills? As Natt Grant mentions basic skills of legal thinking include seven overarching processes or intellectual skills: problem solving, identifying legal issue, logical reasoning, arguing from rules, seeing all sides to a question, attending to detail, recognizing the big issues (6, Franklin K., p. 867). Thus, law students must be able to extrapolate outcomes from legal principles and given facts, so that students are better able to identify and apply unarticulated policy reasons (20, Midson B., p. 110). In this sense, legal reasoning skills are an important part of students' lawyering skills and it is imperative to use appropriate tools in order to learn them. Professional lawyering skills refer to a plethora of cognitive and affective practices that promote lawyering excellence (12, Hess G.F., Friedland S.I., Schwartz M.H., Sparrow S., p. 202).

Certainly, taking into account the specifics of each branch of law the tools chosen to develop legal reasoning skills can differ. The reason why film clips help students gain legal reasoning skills lies on both legal and social grounds of students' education. Some scholars underline that since we now live in a visually oriented and technology driven society, our classroom teaching rather than insisting on clinging on to teaching methodologies that belong to other paradigms, should adapt to the new realities of a fast pace audiovisual culture. (10, Hermida J., p.7) That is why visual tools such as films' clips used in teaching and learning Criminal Law could help students develop such skills like legal reasoning, ability to understand and apply law, the ability

to asses, marshal and "manipulates" facts, etc. These teaching tools make the most extensive kind of learning style students' demand without compromising the objectives of achieving excellence in the discipline (10, J. Hermida, p.7), because they help students create schemata, focus their attention, and rethink the concept rather than reread or restate them (11, Hess G. F., Friedland S., p. 82), helping them to construct their knowledge through developing critical thinking.

Clips from movies or television programs are effective devices to illustrate concepts, present problems, and provide a vehicle to start discussions (11, Hess G. F., Friedland S., p. 87) and can be used as a problem or hypothetical upon which the educator elicit careful analysis. The benefit to the students is that he has an immediate visual context for the events, and he also sees the emotional facts at issue, rather than merely viewing the problem as words on paper (24, Salzmann V.S., p. 313).

In this sense, the advantage of using film clips is that students are placed in a specific environment and are more connected to the real life, being able to simplify the legal issues they face by creating a specific context and approach. Thus, they can create their own arguments making analogies between the law and the real case.

Even if film clips can facilitate the learning process it is crucial to establish how to use film clips in order to reach appropriate/desired results. If used carefully and thoughtfully, film can bring new insights and perspectives into the classroom and can serve as a springboard for critical discussion and reflection on the perspectives and biases brought to this subject by students as well as professional (8, Hall T.S., p. 299.). Also, this technique is used as pedagogical tool for stimulating the memory. Cinematic representations of criminal law and criminal justice are often more entertaining to students than either verbal presentations of information or the often dense academic literature, and, as such, the ideas often remain longer in their mind. The film is used not only because, of course it is fun to do so but because it is important to bring to light the things the film can teach us about our legal and social world. (28, Cawan S., p.197-210). In this sense, in order to make the film clips a benefic tool for teaching and learning it is needed to underline several particularities. First of all it is necessary to determine what kind of film is more appropriate to use in a criminal law classroom: commercial or a documentary one. For instance, in order to use any documentary to maximum advantage in the criminal justice classroom, it is needed to focus not only on fostering students' interpretative skills but also on providing them with a context for the films chosen to show (14, Jenkins M., p.342). The commercial film can illustrate better some parts of the social life that usually can be classified as crimes in a simpler manner, being more accessible for students.

Secondly, it is important to decide whether is appropriate to use some clips more relevant for the class or the entire film in order to show the circumstances and to raise discussions. Film clips can save more time for complementary tasks and would offer the opportunity to students to be more involved. In the same time, a film can make them better understand the context and their analysis can be broader.

Finally, it is relevant to establish what kind of exercises students will be involved in after watching the film clip and how they will analyze the legal part. For instance in cases of legal ethics, film clips can be used as part of the students' written assignment for the class. Each student could choose to view one of the films presented in a list. They chose one ethical issue that the lawyer in the film faced and had to analyze the issue in light of five ethical frameworks that were discussed in the class. Students were asked to articulate a personal framework that could be derived from one of the proposed articles or could be their own product. Students were to explain and justify their framework and apply it to the ethical issue in the film (28, Alexander T., p.197-210).

Another way, in order to facilitate the process, is to provide discussion questions to the class before showing the clip. This allows students to think about the questions, and prepare to apply legal doctrines to the clip they will see in the class. Students are more likely to raise both substantive legal and policy issues after seeing a clip than after reading cases or texts alone. (23, Pendo E. A., p.273).

Thus, film clips are seen as multifunctional tool. If on the one hand films are used to link the theory and practice in order to make students' better formulate their arguments and motivations, on the other hand, they are used as rich teaching texts, exploring valuable lessons that are sometimes insufficiently addressed in the case book, and sometimes omitted altogether. (19, Meyer P.N., Cusick S.L., p.914).

Based on the experiences motioned above, teaching and learning law through film clips is considered already a good practice. However its sole contribution to fostering students'' reasoning skills is still questionable. Moreover, the assessment of the impact of this intervention depends on data analysis methods used and the background of the students' involved.

As was mentioned above, I decided to involve in my project students from the second year of study. I have selected three methods to gather data: survey, essay and interview. In order to offer a creative environment to my students I decided to use commercial film clips analysis. I conducted five session using different film clips followed by discussions in the classroom. However, for the essays I asked students to watch the entire film at home in order to make a comprehensive criminal law analysis of the identified issues.

HOW I CONDUCTED THE RESEARCH?

Survey on used teaching interventions

I conducted a survey on weekly basis using short questionnaire. The purpose of the survey was to identify the impact of the film clips used and analyzed/discussed in the classroom. I started with explaining what legal reasoning skills mean and how they can be gained. I asked students to compare film clips' analysis with other interventions used during classes and to explain their opinion in order to assess the impact. For this purpose I have selected five teaching interventions: case study, debates, hypothetical discussions, presentations and film clips analysis. At the beginning of each class I explained what teaching intervention will be used in accordance with the objectives of each topic. I conducted five film clips analysis sessions in the class during the second semester. Each film session was followed by the discussion and analysis of the facts and criminal law issues identified by students. Film clips analysis is not often used in the classrooms that it why students' noticed from the very beginning that this intervention was introduced in order to improve their way of learning.

Essays

The purpose of the essay was to assess students' progress on developing their legal reasoning skills based on the ability to motivate, to present arguments and to make conclusions. My initial hypothesis was that essay can reveal better the progress students made during the semester. Students had the task to write an essay up to three pages each on criminal law issues. I provided students with specific requirements. The essay had to include a short introduction to the issue, theoretical and practical parts, and final conclusion of the author.

Interviews

I conducted five interviews at the end of the semester. The purpose of the interviews was to reveal students' attitude towards the role of the film clips used in developing legal reasoning skills and to measure its progress. I have selected five students that were actively involved in all projects' activities who agreed to answer my questions during the interview.

WHAT DO THE RESULTS SHOW?

The assessment shows that students" legal reasoning skills can be developed or improved through different ways. Film clips analysis is **only** one of them. The data gathered using three methodological tools prove that:

1. Film clips analysis helps students to understand better the context, to identify the facts, to establish the legal issue and to apply the appropriate legal norm.

During the first film session conducted in the classroom I used scenes from the movie *"Seeking Justice"*. The scenes covered psychological constrain as a circumstance that excludes the criminal character of the illegal act. My purpose was to make students understand how the psychological constrain can be used and why it is important to consider it as a cause that excludes criminal liability.

Due to the fact that this was the first film session I asked students to do the following: (1) to watch all the actions on the screen; (2) to write down all the facts they considered important; (3) to write the legal issue identified in the film clip; (4) to find the appropriate norm in the Criminal Code; and (5) to motivate their opinion and the application of the identified criminal norm.

As a result of this intervention, in the questionnaires the majority of students stated that film clips analysis is a good way of understanding the facts and memorizing the scenes. This helps them to motivate their opinions better and to apply correctly the legal norms. Students noticed that using film clips during criminal law classes is more interesting and makes the discussions easier in terms of simplifying the substantive concepts.

In fact, one of the students mentioned that using film clips in the classroom *"make seminars more interesting and stimulate visual memory, facilitating the learning of criminal law"*.

In the second session I have used several scenes from the movie *"Drive"* asking the students' to analyze the role of the main character and to describe his criminal conduct according to the provisions of the Moldova Criminal Code. My goal was to make them familiar with the role of the accomplice at the commission of the crime.

From my observations, students identified very easy the facts, which the accomplice is and what kind of actions he fulfilled in the scenes, they identified correctly the legal provisions, but faced some difficulties in formulation of the legal arguments. In this sense, motivating the effectiveness of the film clips one student stated that *"the film clips are very similar with real cases and this makes the analysis easier and more interesting"*. However, during the interviews conducted at the end of the semester one of the five students involved in interviewing said that *"because in the film the crime is committed perfectly it is more difficult to associate them with real cases from the judicial practice"*. On the other hand, the rest of the students mentioned that: *"the task to identify the criminal issues in a film makes you to play the role of the lawyer and helps you to justify better the legal opinions"*.

In the third and fourth sessions I have used several scenes from the Russian serial *"Brigade"*. Students had the task to describe the roles of instigator and organizer of the crimes and to classify their criminal behavior. My observations were similar with those motioned above. However, based on the film sessions conducted in the classroom, students created their own role play exercise in order to illustrate several hypotheticals discussed during the seminar, performing their team work. They motivated that: *"film clips analysis inspired us to create our own visual tool in order to explain to our colleagues the issues that were too difficult written in the book because the role play in group facilitates the understanding of the criminal behavior context"*.

The essays written by students showed similar results. As I mentioned in the introduction of this paper one of the essays identified that my students lack analysis and argumentation skills. In order to assess their progress during the semester I asked them to write the second essay based on the film *"Ocean eleven"*. In this sense, comparing the content of the essays, I can say that the legal reasoning skills improved. The film helped students to visualize the facts and to imagine the problem they have to describe, made them to memorize the context and the general concept learnt during the classes and encouraged them to be more creative.

The majority of students began their essays with a brief description of the film as the following quota illustrates: *"Danny Ocean, after being released from the prison, started to plan the robbery of three Las Vegas casinos simultaneously. He asks his friend and ex partner, Rusty Ryan, located in Las Vegas, to help to follow his plan…"* [70] This short description reveals students' ability to identify the facts of the story. Students selected, systematized and summarized the facts to create a clear picture of the crime as the following statement shows: *"The crime is prepared in advance and each participant has his own role: some of them threaten people with violence or search them, others watch the place where the action is taking place while the rest of the group executes the "duties"*.[71]

Also, students separated the scenes of the film in parts in order to establish and to recognize each fact; they were able to rank the facts in terms of relevance and importance because they selected only those facts that describe the criminal behavior. This is shown by the following quota: *"The first fact is that Danny Ocean, a recidivist that after being released, recruited 10 other people in order to commit the robbery, the second fact is that the members of the group are professionals previously involved in other unlawful activities, the third fact is that participants discussed the criminal plan in details and distributed their roles according to their own experience, acting with a common intention…"* [72]

Students showed factual accuracy and described in details only legally relevant facts: *"the group is very well organized; each participant knows his role, when to intervene, the location where to perform, and the devices that must be used…"* [73] They picked up the determinative facts that can lead them to the solution of the legal issue: *"Danny Ocean has recruited ten persons that have different occupations in order to commit the robbery and to execute his plan..."* [74]

As a result, the majority of students were able to **identify** correctly **the legal issue** in the film. A good example is the following statement one student made in his essay: *"this film describes the complex conspiracy because it is easy to identify the roles of the author, organizer,*

[70] Essay Iu Cur2
[71] Essay Mtca2
[72] Essay A Fur2
[73] Essay DumCo2
[74] Essay Di Cojoc2

instigator and accomplice of the crime…" [75] or *"describing the facts showed in the film I identified the particularities of conspiracy based on the number of participants involved in the crime of robbery as organizers, instigators and accomplices…"* [76] Visualization helped students to understand the difference between lawful and unlawful behavior, because they identified the signs of criminal behavior in case of each participant, like in the following example: *"Frank Catton is an accomplice because he bought a car used for the commission of the crime…"* [77]

Interviews conducted during the research also showed that visualization of the "problem or case" is a helpful exercise for establishment of the legal issue's characteristics. Four from five students mentioned that: *"the task to identify the criminal issue in a film makes you to play the role of the lawyer and helps you to justify better legal opinions"*. It seems that students can easier assume the role of lawyer through visualization of the problem rather than through theoretical concepts because they cannot only imagine what they will do in a concrete case, but they can act as such having the real case in front of them. Students better understand not only what the facts are but what they suppose to do with the facts afterwards and how these facts can make them to identify the legal issue. Students realize that the first step in solving a legal problem is to understand the context and to select the facts that will help them to answer the question.

However, one of the five students involved in interviewing said that *"it is more difficult to associate the film clip with real cases from the judicial practice because in the film the crime seems perfect"*. This means some students misunderstand the relevance of particular facts, because in real cases they don't exist or ignore them, being unable to rank their relevance and importance for the story. This "artistic" shadow of the legal issue can make some students to reveal irrelevant dates and unnecessary or superfluous details as in the following example: *"Ocean Eleven is an American comedy-crime film that remakes a 1960 film…"* [78]

Nevertheless, this type of exercise encouraged students to be more creative in discovering the legal issue and inspired them to do the homework in a different way. They developed a role play exercise to illustrate the theft and murder committed by a group of persons. Students used visualization as a tool in order to make others identify the facts and the legal issues. In the same time, through creation of this simulation, students identified first what is important to illustrate, what is the legal issue and how the hypothetical should look like to be understood by others. Students used not only their criminal law knowledge but their ability to manipulate the identified facts making the connection between the real cases and fiction. Students were able to summarize the most relevant facts and to formulate appropriate questions in order to raise the legal problem. They create their own group of discussion and distributed roles among themselves in order to perform in front of their colleagues. During the interviews several of them mentioned that: *"film clips analysis inspired us to create our own visual tool in order to explain to our colleagues the issues that were too difficult written in the book. The role play facilitates the understanding of the criminal behavior context"*.

Therefore, the film encouraged students to base their analysis on the facts and details, they previously ignored. The visual environment stimulated their capacity to appreciate the importance of the details, helped them describe the context, as much as possible, in order to prove their legal solution. Students understood that being **attentive to the details** is a good way to be persuasive. The details' description can be found in the majority of the essays, for

[75] Essay DaC1
[76] Essay Iu Cur2
[77] Essay Al Abdries2
[78] Essay Doi Ciu2

example one student described what the plan of the perpetrators was in the film: *"the plan contains several steps: to get the information about the casino's security system, to obtain the information about the access to the money, to turn off the electricity in the entire city, to check how the cameras from the casino are working, to learn about the safe features, to find good transportation means and to prepare the explosive device…"* [79] This example demonstrates that students have the ability to identify and to filter the relevant details for their case. Students are able to use the details in order to build their theory; they can be as descriptive as possible to prove their case. Detailed analysis of the facts and of the legal provisions shows students ability to systemize and to generate new ideas.

Students used many descriptive details to build their statements as is shown in the following example: *"bothers Virgil and Turk Malloy are professional drivers; Livingston Dell is a professional electrician while Basher is responsible for explosive devices…"* [80]

Likewise, other students developed their opinion based on explanatory statements as in the following example: *"Danny Ocean is the organizer of the crime because he is the one who comes with the idea of crime and makes the plan; he organizes and leads the criminal group and its activities…"* [81]

Some of the students chosen to finish their fact analysis with a summary statement like in the following quota: *"thus, Ocean reached his goal, his plan was fulfilled and stolen money were divided between the members of the group…"* [82] Others developed generalization statements in order to clarify legal aspects of the issue they analyze like in the following exempla: *"a criminal group can be more dangerous because each members has his/her own role and in this way it is more difficult to stop or to prevent the crime the group is going to committee…"* [83]

During the interviews, students also mentioned that *"this unique experience helped us better understand the issue and made us to pay attention to the details related to the legal aspects"*. This quotation shows that students started to observe the details thanks to the film clips analysis and understood very relevance for solving the case.

Additionally, visualization of facts helps students to develop **logic reasoning**. The following example shows students‟ ability to make well grounded affirmations about what they saw in the film: *„we can see in the film the activity of a well organized group because each participant has a well defined role, each of them is actively involved in the commission of the crime, they are able to provide any services to the group and to remove the obstacles. They are very self-confident and experienced because this is not the first crime they commit…"*[84] This shows that students structure their thought in a deductive way, starting with general idea and ending with specifics of the criminal group. They describe precisely and systemic the elements of the criminal group and the participants' involvement. They make the connection between the background of the participants to the crime and their criminal behavior.

In the same time, the majority of the students were able to maintain the consistence of their thoughts as in the following quota: *"therefore, I would like to describe step by step the details of film's scenes, features of each action that occurs in the film and the personality of each character in order to define their roles…"* [85]

[79] Essay DuC2
[80] Essay IrDO 2
[81] Essay DiCo2
[82] Essay DiCO2
[83] Essay AFu2
[84] Essay DuC2
[85] Essay Din Cojo2

Some students were able to compare different notions and concepts: *"criminal organized group, compared with other forms of conspiracy, has few specific features that I identified in this film: prior agreement among the participants, drafting the plan of the crime, distribution of roles among the participants, determination of the methods and ways to commit the crime…"*[86]

Other students used causal reasoning in order to sum up their conclusion: *"the stability of the criminal group is proved by the following facts: the period of time the group is acting – from the moment the group was created to the moment they committed the first criminal action; the well defined plan of the criminal activities; the distribution of the roles among members of the group…"* [87]

Statements of some students show they developed the capacity to make conclusions based on the facts identified in the film as in the following example: *"based on the film I can conclude the following: (1) the crime is committed by a group of persons; (2) I identified the roles of the participants; (3) I established that in the film the participants acted with common intention;(4) the participants in the film manifested a common criminal activity…"* [88]

I noticed that students described in the essays the role of each participant according to the provisions of the Criminal Code and explained the features of the criminal behavior using legal terms. Students pointed out the main elements of the crime, identified the Chapter and the article from the Criminal Code and **argued** their position based on the well known criminal law principles. In this sense, one student mentioned that: *"Daniel Ocean is the organizer of the crime because he came up with the idea, organized and directed the crime; created the criminal group and managed its activity. He acted with direct intention because he understood the dangerous character of the act and foreseen its consequences. He has the main features of the subject: age and responsibility"* [89]

The majority of students made reference to the core elements of the law in building their arguments: *"I think that in the film we can identify a criminal organized group because according to the art. 46 of the Criminal Code a criminal organized group is a stable union of persons that organized themselves in advance in order to commit one or more crimes. In our case the group committed only one crime, but it is a stable union of persons because by the end of the criminal activity all participants were involved in groups' actions and they created the group with two weeks in advance of the crime commission..."* [90]

Thus, students were able to s**olve the legal problem** and explained how each participant can be punished according to the Moldova Criminal Code: *"the author of the crime shall commit the actus reus of the crime with intention. In our case the author of the crime will be punished according to art.42 and art.187 CC, based on his contribution to the crime…"* [91] This example shows that students understand the relevance of the legal provision and can apply it to the real case: *"the film describes the cooperation to the commission of robbery provided by the art.187 CC…"* [92] These quotas shows that students are able to apply the relevant law to the material facts. Students shifted out all irrelevant legal provisions and retained only the law that is pertinent for their case.

Students made the distinction between crimes and other illegal acts like in the following

[86] Essay A. Andries2
[87] Essay MTca2
[88] Essay Iu Cur2
[89] Essay DiC3
[90] Essay VaN2
[91] Essay VaN2
[92] Essay IrD

example: *"each participant, no matter what kind of actions he/she committed, will be criminal liable because he /she acted with intention and attempted against social values protected by Criminal Code and his/her personal contribution is considered a social dangerous activity…"* [93]

Students have the ability to think independently and to appreciate which provisions of the law is applicable to their own case as this quota shows: *"in my opinion Danny Ocean is the organizer of the crime because the idea to organize and to commit the robbery comes from him. In this sense, according to art.42 (3) of Criminal Code an organizer shall be considered the person who organizes the commission of a crime or manages its commission as well as the person who creates an organized criminal group or a criminal organization or manages the criminal activity thereof"*.

They can give solutions through interpreting the provisions of the Code and reason their answer based on the facts: *"based on the coordination degree of participants' activities I noticed that in the film we can identify a criminal organized group because it meets all the requirements specified in the art.46 of the Criminal Code as follows: the participants in the film act with prior agreement, in the film the group is a stable one because its members have a strong relationship, the purpose of the group is to commute crimes, in this case a robbery..."* [94] This means that students can not only manipulate the facts but also work with the legal text.

Students can support their discussions with the law and this demonstrates that they are able to construct a logic argument as in the following example: *"at first it seems that Ocean is the instigator of the crime because he convinced and determined the rest of participants to commit the crime; however when a person not only determined others to commit the crime but also takes some measures to organize the criminal activities, this person is considered organizer of the crime. Thus, we can say that Ocean is the organizer and not the instigator of the crime…"* [95]

2. Film clips analysis facilitate students discussions, encourage them to be more creative and to analyze the legal issue from different perspectives.

Based on the four film session conducted, the majority of students stated in the questionnaire that film clips analysis made them willing to express their opinions making reference to the legal norms and judicial practice. One of the student stated that *"analysis of the film clips can bring some new ideas omitted during the lectures or seminars"*.

The second essay, also, showed that visualization of the issue can develop students' creativity and ability to analyze the facts from the legal perspective. The second essay was focused on the factual and legal analysis of the film *"Ocean eleven"*. The topic for the essay was *"The role of each participant at the commission of the crime"*.

Because one of the students complained that *"film clips don't necessary covered all aspects of the crime and for better understanding it is worthwhile to watch the entire film"*, I asked students to watch the film at home as a part of their preparation for the essay. This film covers a very interesting topic for the Criminal Law – *"Conspiracy"*. Students had the task to analyze this topic according to the same requirements based on the scenes from this film. After reading all the essays I noticed that students were more creative, they understood better the notions and concepts related to conspiracy being able to describe all the facts identified in the film. However, their legal analysis was not very deep and strong, but their conclusions were well grounded. Their focus was on describing the role of each character from the film according to the provisions of the Criminal Code rather than analyze the entire picture.

[93] Essay AlA2
[94] Essay IuC2
[95] Essay IrD2

During the interviews, students mentioned that *"this unique experience helped us better understand the issue and made us to pay attention to the details related to the legal aspects"*.

Also, four students from five mentioned that film clips analysis used during the semester helped them to develop their creativity and to analyze the criminal law issues from different perspectives, making them to pay attention to the details and to cover the social aspects of the problem.

However, they mentioned that writing essays based on a film analysis was a very interesting and good experience because it made them to express their own opinions and to bring their own arguments based on what they saw.

3. Exclusive using of film clips analysis does not assure development/improvement of legal reasoning skills.

The result of the survey revealed different particularities of students' learning due to the fact that they were asked to choose among five teaching intervention the most effective one.

I noticed that initially students started to choose as most effective intervention the one used the same day. This tendency gradually disappeared. However, the preferences of students in terms of efficiency started to be observed from the beginning.

Comparing film clips analysis with other interventions used during the seminars their preferences changed. The most efficient ways of learning criminal law concepts were considered debate. In this sense, one of the students mentioned that *"debates help me to understand better the topic, to make very detailed analysis and to memorize better the legal terms"*. Another student stated that: *"debates are very interesting because they help us to work in groups, to provide arguments, to listen each other; they develop our ability to address questions and formulate hypotheticals and help us to classify correctly the crimes."*

Students agreed that *"debates help them to formulate and to express their own ideas and to solve controversies"*.

The debates were followed by hypothetical discussions in students' preferences. One student mentioned that *"hypotheticals help us to identify problematic legal issues, to analyze it from different perspectives, to find the solution and to motivate our opinion"*. Another student mentioned that *"hypotheticals are interesting because they help us to see how the things work in practice and to analyze almost real cases, making us closer to daily practice"*.

One of the students said that *"hypothetical discussions and debates are the most interesting tools that can develop skills needed for future lawyers"*.

Thus, the advantages of these two interventions chosen by students were the following: (a) they can be all involved in the discussions; (b) all of them can express their opinions; (c) they can use own examples; (d) they can make the connection with the real cases, (e) they can learn how to address and answer questions; (f) they can identify easier the legal issues.

The case study was ranged as third preference together with the film clips analysis. Students' mentioned that case study helps them to learn more about judgments and decisions on concrete criminal cases issued by the Courts. They can learn how to identify the facts and analyze the court's opinions based on their knowledge. One student mentioned that *"the case study shows how the theory is working in practice"* and *"explain in depth the particularities of cases"*. However, this intervention is better to be used together with hypothetical discussions.

Presentations were considered the most ineffective learning tool. The main disadvantages refer to the limited time for discussions and poor understanding of the presented topic. However, students' involved in preparing the presentations stated that this tool helped them better systematize and analyze the topic through research and writing.

Several students considered that using all mentioned above teaching interventions, excepting presentations, could help them to improve their legal reasoning skills. This mixture can cover the lacks of each particular intervention and can conduct to a better learning. One student mentioned that; *"all interventions are very welcome, but each of them has its own impact on students learning"*.

Similar answers were provided during interviews, all five students agreed that the way students learn depends very much on the way professor teach. They stated that it is appropriate to use different teaching interventions in order to improve their learning. All of them agreed that their skills improved during the semester thanks to all teaching interventions used in the classrooms.

The results of the survey show that film clips analysis is only the third preference in students learning ranging while the four of five students interviewed stated that film clips analysis is one of their favorite interventions. My initial claim was partially confirmed.

CONCLUSION

As a result of my research, I this small research helped me to assess not only students' learning but their attitudes and ways of thinking. I started with the presumption that innovative teaching methods can change the way students are used to learn, making them to develop their own skills and abilities. However, in order to help them to become good lawyers it is necessary to inspire and motivate them to work on their skills.

1. film clips analysis helps students to understand better the context, to identify the facts, to establish the legal issue and to apply the appropriate legal norm;

2. film clips analysis facilitate students discussions, encourage them to be more creative and to analyze the legal issue from different perspectives;

3. exclusive using of film clips analysis does not assure development/improvement of legal reasoning skills.

In conclusion, I can state that my initial claim was partially confirmed by the results of the assessment: film clips analysis can contribute and facilitate the development/improvement of legal reasoning skills.

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BYPASSING CURRICULA CONSTRAINTS BY MEANS OF ICT

Mihaela Balan, Rostislav Călin and Dumitru Ciorbă
Automation and Information Technologies Department, Technical University of Moldova

Abstract: The education system of Moldova acts by the inertia of a traditional framework, which regards the education as a production process. The production of prepared and disciplined staff is done in accordance with standardized educational processes. This approach probably fits perfectly into a society which undergoes full industrialization, but not into a post-industrial one, which faces big social and economic challenges. The need of changes in the society is entirely reflected in the education, where the curriculum emerges as a transformation of an effort (individual and collective) into *competences the society needs*. What can be done if this transformation function has different economic, social, cultural and political constraints, that diminish the development of responsibility, creativity and critical thinking, but also the ability of *an individual* to work in a team? The goals of any actual program aim for these characteristics, necessary to each employee. But, these being not put into practice, not being part of the *learning model*, by no means can be fully reached. Therefore, a new learning model is imposed: a restructuring of the study program based on interdisciplinarity (attained by real-life problems of the society), flexibility (offered by information technologies) and freedom (to individually choose the problem in accordance with one's abilities and interests).

Keywords: Curriculum, learning model, ICT, PBL.

PREMISES (WHAT IS THE PROBLEM?)

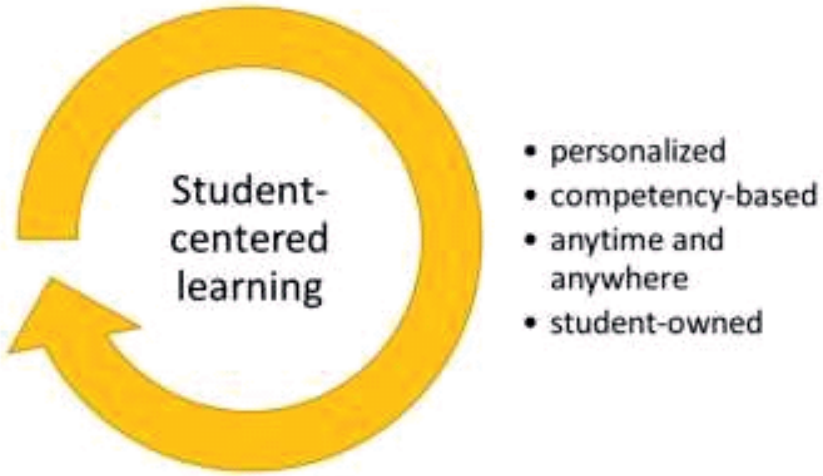
Moldavian education system as a whole, and higher education specifically, was mainly a heritage of the Soviet education systems, based on the classical approach: teacher – centered pedagogies. In the last two decades, considerable effort was put into adjusting our national education system in accordance with the international, mostly european standards. TEMPUS programme was the first to be implemented, as early as between the years of 1990–1994 in its first phase, later being consolidated in four phases, from 1994 up to 2013.

Today, moldavian higher education is part of the Bologna process, meaning that our higher education is compatible with the european one, so our students and staff have mobility opportunities in such partner programmes as Erasmus or Erasmus+. Yet, it wouldn't be fair to say that moldavian education system fully complies with the modern european systems, as the study process isn't tailored to the needs of each student taken apart.

The main goal of modern pedagogies is to create open-minded citizens and young people able and willing to study more and more, to find and acquire information on their own, in accordance with their interests and needs and requirements of the labor market, rather than just reproduce pieces of discrete information transferred from the teacher. This aim can be fully achieved by creating a democratic education system based on freedom and responsibility of the individual. The student should be the one who decides what he learns, how he learns and when he does that, and the teacher should become a facilitator which must assure the freedom to learn (Rogers 1969).

The main problem of today's education system is to perform a bottom-up mindshift, bypassing a quite rigid curricula, such that the result would be a higher education that could be described as follows (Wolfe, Steinberg and Hoffman 2014): Learning is personalized and competency-based; takes place anytime and anywhere; and students take ownership of it (Figure 1).

Figure 1. *Shifting to education model with another characteristics of learning*



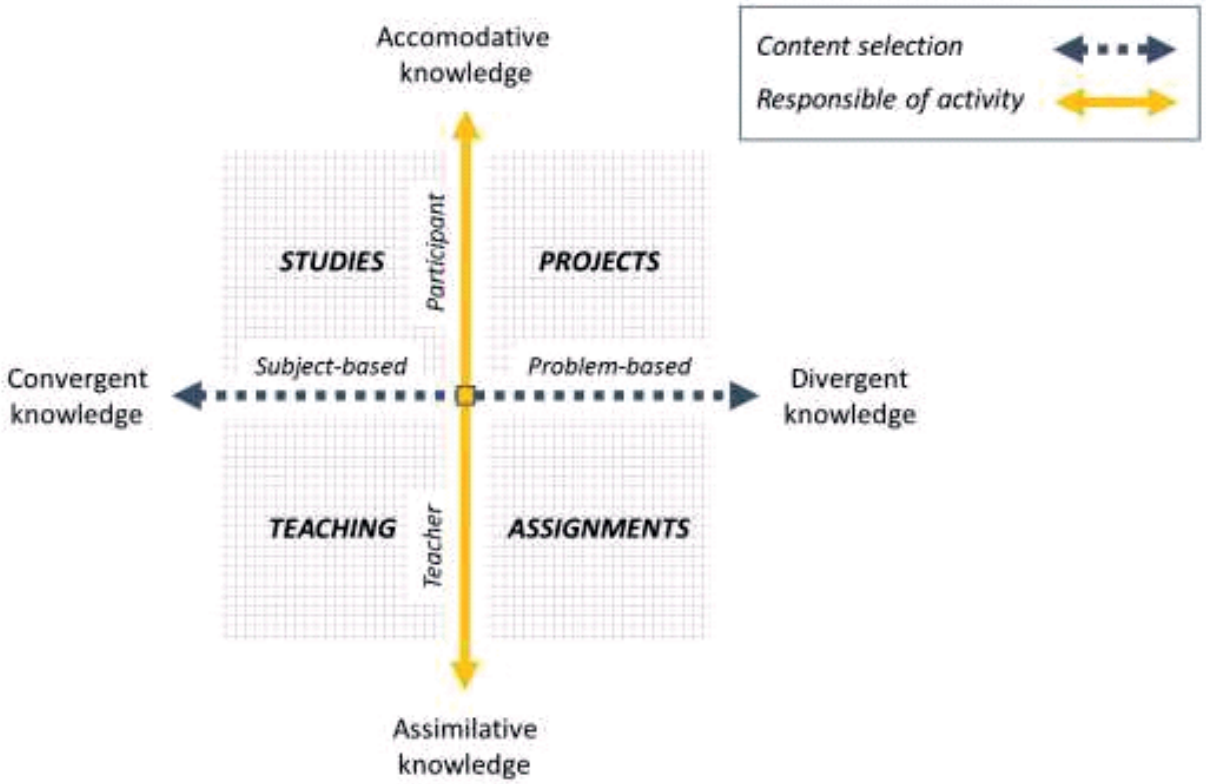
Republic of Moldova is a small "melting pot", so this peculiarity should be also taken into consideration when structuring an education system. More than that, this apparent issue can be turned into an advantage, as Europe is also multinational and multicultural, thus Moldavian students can be better prepared for mobility, being constrained to work in multinational teams even at home.

LEARNING MODELS

Prior to making the proper decisions on adjusting the educational system, we have to dig into the existing pedagogical models, such that we could draw conclusions leading to putting the best practices into action.

A didactic model comprising all the processes that are part of the education process is presented in Figure 2 (Illiris 2007):

Figure 2. *A didactic model (Illiris 2007)*



According to this model, currently our pedagogies are in the 3rd quadrant, adhering to the classical teacher-centered education, with subject matter orientation, rather than problem orientation and teacher direction rather than participant direction. The main issue of this kind of teaching is the lack of holistic approach, thus producing graduates able to reproduce discrete pieces of information on different subjects, yet unable to integrate all that knowledge and lacking the experience of problem solving and research skills. But, treating learning as a holistic process of „adaptation to the world" permits to build conceptual bridges between classroom and real-life situations and setup the learning as a continuous and lifelong process (Kolb 1984). So, we would like to design an active learning system that would move the "clock hands" to the first quadrant – projects, where the student is shifted from the peripherals to the center of the study process and the content of the studies from discrete, short-term assignments to semestrial, medium-scale projects. Moving in the positive direction, meaning counterclockwise, we can reach the first quadrant via the fourth, bypassing the rigid curricula by simple means of tailoring the content of each subject for student's needs, as a first step towards the true PBL-model.

Another model is given by (Fox 1983). The author outlines four theories of teaching:

• *Transfer theory*, which treats knowledge as a commodity to be transferred from one vessel to another;

• *Shaping theory*, which treats teaching as a process of shaping, or molding students to a predetermined pattern;

• *Travelling theory* which treats a subject, as a terrain to be explored with hills to be climbed for better viewpoints with the teacher am the travelling companion or expert guide;

• *Growing theory*, which focuses more attention on the intellectual and emotional development of the learner.

On a closer look, these theories overlap the scheme proposed by Illeris (Figure 2): Shaping theory = Assignments (quadrant 4); Transfer theory = Teaching (quadrant 3); Travelling theory = Studies (quadrant 2); Growing theory = Projects (quadrant 1).

As an outcome of the paradigm shift, we will jump from the convergent thinking with the unique correct answers to the divergent thinking, allowing a multitude of solutions for the same problem, stimulating imagination, creativity and fostering the desire to research. Further on, we will propose ICT means to help move from teacher-centered learning to learner-centered model and further on, to learner-driven model, when the student him/herself shapes his/her course, having the necessary knowledge, experience and background to be able to do so.

SETTING UP A PBL ENVIRONMENT

Setting up a PBL environment is a multi-dimensional task, as it should cover both the learning process management part, and the contents of each course. In terms of management process, there is the student-teacher/facilitator communication regarded, as well as the document storage and management part. At content level of each course, there is enough room for ICT to help tailor even the oldest and most rigid parts of the curricula to the needs of an individual.

Learning process management

There are different models of PBL implementation, but in the context of training software engineers, the experience reflected in (Zapater, et al. 2013) has to be mentioned. The authors have used the SCRUM methodology on an experimental group of students, methodology that is heavily used in software industry. Thus, besides the pedagogical objectives the students had to study also versioning control tools (to share the code with team members), to divide complex tasks into smaller ones, to analyze and measure the time needed for each of the tasks, to develop communication abilities for an efficient interaction with their colleagues. The quality and quantity analyses of the Agile-PBL experience vs. traditional methods have shown more student satisfaction and motivation. Yet, the same measures show that there are negative effects related to additional planning and coordinating time (planning overhead) and also related to additional required tools in use. The main conclusion is that information technologies should be an ally in obtaining learning freedom and by no means a new constraint.

The modern development environment does not allow any more to regard education in its classical form. This approach isn't enough competitive in the 21st century, and also technical and scientific revolution does not happen once in a century any more, not even once in several decades. Major change takes place once in a couple of years or even months.

Most of the fields of human activity have gone through several revolutions: industrial, technological, electronic, and digital. Almost everything is being digitized and information technology is applied all over the place, thus increasing the efficiency of most processes. Even in arts, where the human being is still the only one to create, information technology is heavily used.

These trends especially impose using the ITC progress in the education as well, and those who stay with the old school take a huge risk not to be competitive any more on the international level as well as on regional level. Currently, we have a wide set of tools and

technological possibilities to streamline the traditional education as well as to be used with PBL methodologies. Amongst the main requirements we could enumerate the following:

• *online storage*, collecting and storing information and knowledge;

• *eLearning*, information and knowledge presentation tools;

• *ePractice, eSimulation*, communication, activities (including interactive), teamwork, providing practical learning (a rich set of experiences and practical simulations, real-life cases and problems, including technology use and augmented reality);

• integration, tools for processes' and learning system management with possibilities of integration and collaboration with other systems;

• *mobile*, possibilities to integrate and use all the platforms and mobile technologies.

Most of these requirements are already fulfilled by a set of solutions and tools, some with 15-years experience already.

As an example, the Moodle platform offers advanced options for e-course creation, remotely accessible, with a large set of activities – that cover widely the content (*eLearning*).

There are also tools and solutions provided as free of charge by companies, such as Google, Microsoft, one of these tools being also Office 365 for Education with a set of tools that are suitable for streamlining the education process and also PBL.

Content adjustment

ICT is a highly dynamic field, where changes are a routine, so the study programmes for any IT-related course should be revised at least once per academic year. Yet, changes need approval by the authorities. A new or revised course should be reviewed and approved at the university level and, furthermore, at Ministry level, which is not a short way to go and, it would take more time to do than reasonable for the IT sector, as by the time the changes are approved, there's a new emerging technology on the roll that must fit into the study curricula.

Things aren't bad anyway and, ICT offers a large range of possibilities to adjust even the existing curricula to the needs of each group and even more, to the needs of each individual. Actually, it's only a matter of mind shift of each teacher to use ICT to the advantage of the student.

We, the authors of this article, would like to share the experience of curricula adjustment by means of technology. Let's have as an example the subject "Object-oriented programming, analysis and design". The approved curricula on this subject comprises lectures, seminars, individual assignments (laboratory works) and an individual semestrial project. At a glance, it looks rigid and not PBL-oriented at all. What can be done?

First of all, at seminars, the teacher can divide the class into several groups and ask provocative questions that would stimulate each group and individual to find answers. Questions or problems should be formulated such that there could be more than just one possible correct answer. Seminars should resemble a set of debates, where each team searches for arguments to support their solution, than just answer the questions or reproduce some information.

Laboratory works that are actually a set of personal assignments can also be revised, without even changing the content. The key is to understand that the programming paradigm remains the same: object-oriented programming. There's no need to require everyone to

solve the tasks using only one programming language, preferred by the teacher, let's say C++. The facilitator (or teacher) should be aware of the most of the existing object-oriented programming languages and must be able to, at least, read and understand each of those source codes. This approach is necessary for letting the student decide which programming language he/she prefers to study to accomplish the task. Certainly, students are more likely to follow the latest trends and study what's needed on the labor market (so lots of them can pick languages like Java, C#, Python or Ruby, instead of C++). More than that, laboratory assignments can be also given to groups of students, rather than individuals.

The last, but probably the most important part of the curricula on the subject taken as example is the semestrial project. The facilitator should split the class into groups and let each group research and come with a project topic proposal, which is later on discussed with the teacher and approved. Certainly, the facilitator should provide some general guidelines for the best topics to be chosen, but the students are the ones that should find the problems interesting and challenging for them. Designing and coding the applications/ systems should be done also using those tools, frameworks and programming languages that are chosen by the students.

CONCLUSION

A society can be free and democratic only if each individual is free and responsible for the choices he makes. These important qualities are attained by one only if «practiced», one being put to the center of the learning context. Education from this point of view can be regarded as a framework for creating the best conditions for personal development (Illiris 2007).

In The Republic of Moldova, besides the limited autonomy of the universities, the education is also constrained by different social and cultural aspects. Therefore, the PBL methodology is the necessary organizational method of education that would allow its liberalization.

There are different techniques that come in handy to adapt PBL for the engineering education, such as Agile-PBL, but the study (Zapater, et al. 2013) argues that the methodology by itself are not enough to increase student motivation. If the context determined by our curricular constraints is to be added, then the fundamental conclusion is that freedom can be offered to the student at content-level, determined by PBL on one side, and on the other side – by the tools offered by ICT.

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BENEFITS OF USING BUSINESS SIMULATIONS AS AN EXPERIENTIAL LEARNING METHOD

Clive Kerridge, Teaching Fellow in Strategy
Aston Business School, Birmingham (UK)

Abstract: Based on evidence and assertions about the greater efficacy of experiential learning pedagogies over traditional didactic methods, a range of techniques and technologies have been applied in higher education courses e.g. role-plays, scenarios, games, simulations. There has also been considerable discussion in the management education literature about the relative benefits of individual vs. cooperative group-working activities and learning; the creation of stimuli for enhanced student experience. One field where these various elements coincide is in the application of simulation-based training [SBT] in management education.

The author posits that PBL and experiential learning be considered as part of a continuum within the context of blended learning pedagogies. This paper focuses on the specific case of business simulation games delivered via an online digital platform. The nature of simulation games as an experiential learning technique is discussed, along with research findings from undergraduate student responses to questionnaires (sample size n>500) and interviews. The findings are reviewed in relation to published work on heuristic principles for successful application of games in higher education, and to the Salas at al (2009) seven-stage model for SBT, originally developed for medical and aviation training, applied to management education. Findings are also compared with reported outcomes and impact from student and staff responses in two UK universities where similar types of business simulation are applied.

Observations are made on benefits and applicability of simulations in undergraduate and/or postgraduate business courses in relation to: blended learning deliveries; flexibility in time and duration of simulations; incorporation into group vs. individual assessments; competitive vs. non-competitive scenarios; learning guided (or not) by tutors; technology as facilitator e.g. in provoking group challenges and dynamics; provision of opportunities for reflective learning, both during and after the simulations.

The paper concludes by proposing some guidelines for why and how to incorporate simulations into business and other university courses – with the aims of having happier, more engaged students (and tutors), as well as better educated ones!

Keywords: Experiential Learning; Blended Learning; Business Simulations; SBT [simulation based training]; Simulation Games; Heuristic Principles; Employability.

A NEW DIGITAL LEARNING FRAMEWORK FOR BLENDING ON-CAMPUS CLASSES WITH SYNCHRONOUS AND ASYNCHRONOUS PROVISION

Colin Simpson and Robert Whitehouse, School of Business & Management
University of Gloucestershire

Abstract: This paper discusses a pilot "hybrid" undergraduate Business Management module, which uses a virtual classroom platform to integrate synchronous contact and bespoke asynchronous material. The pilot aimed to achieve the following:

1) more flexible support for our undergraduate learners;

2) sustainable and reusable learning artefacts;

3) live online collaboration for deeper learning through "digital discussions";

4) a Digital Learning Framework embedded within a pedagogical theoretical framework.

We offer our experience of "making the blend", reviewing learner feedback and constructing a Digital Learning Framework which promotes Active Learning pedagogies. Online education has grown in popularity (Barber et al., 2013; Beetham and Sharpe, 2013) and the emergence of MOOC's has afforded a new paradigm and expanded reach for Higher Education Institutions (Zemsky, 2014). This course development responds both to the proliferation of distance learning courses (Knight, 2009) and to recent calls to provide a quality "hybrid" provision (Conole et al., 2010). In designing this technology-enhanced learning environment, we took into account pertinent examples from the plethora of published material on constructivist learning principles and e-learning theories. The resulting Digital Learning Framework aims to provide a valuable set of guidelines for practitioners who aim to align their use of digital approaches with constructivist pedagogical principles.

Keywords: Hybrid; technology-enhanced learning; digital learning framework; constructivist pedagogies.

ALIGNING TECHNOLOGY WITH PEDAGOGICAL APPROACHES

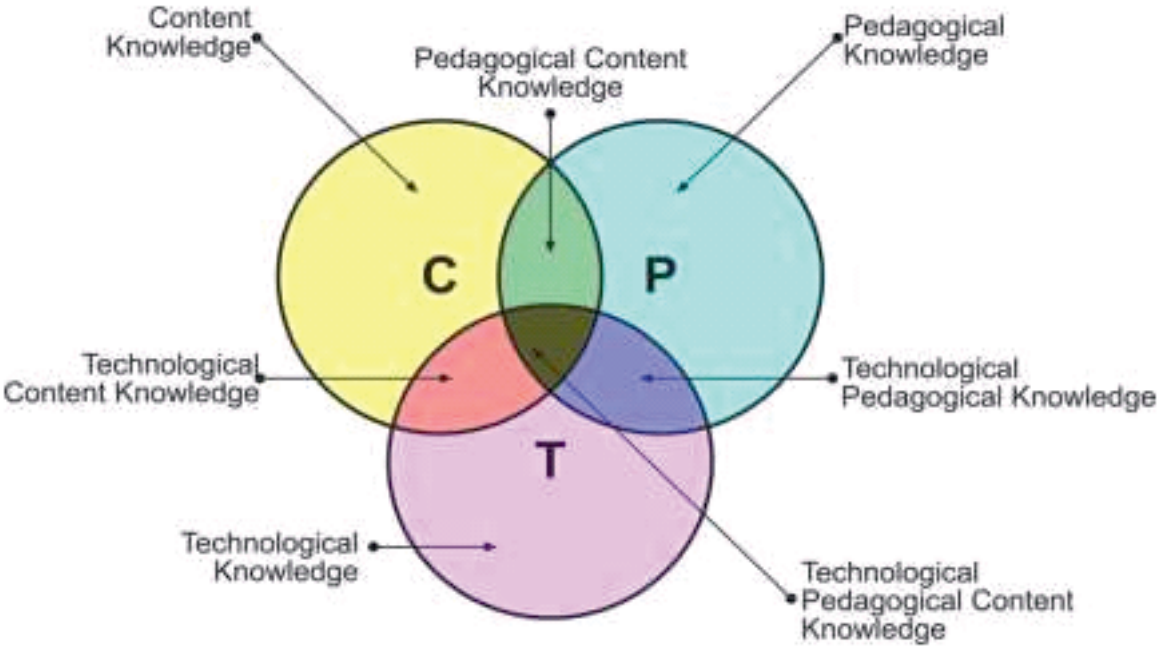
Land and Hannafin (2000) use the term "grounded instructional design" to designate "the deliberate alignment of core foundations and assumptions, and the linking of methods and approaches in ways that are consistent with their corresponding epistemological perspectives" (p.3) An implication of this epistemological alignment is that in using technology to support learning, course designers should consider how the technology supports their pedagogical approach: "In grounded design, the manner in which technology is utilized depends on its appropriateness to the particular epistemological assumptions of a given learning environment." (p.4)

It appears quite inevitable, that learners will come to expect their education will take place within technology-rich environments compatible with their mobile / tablet usage (Beetham, 2011; Shuler, 2009). From, a teacher perspective, it has also become clear that embedding digital technologies to support Higher Education learning environments by using a-synchronous virtual Learning Environments (VLE"s) and iPads has enabled a greater focus upon teacher inputs and learning outputs.

Supporting this notion is the Technological Pedagogical Content Knowledge (TPCK) conceptual framework Figure 1 (Koehler, Mishra and Yahya, 2007) which was designed to facilitate the process of embedding technology within the learning environment. The framework is designed to illustrate the interrelationships between the users, tools and practices, and underpins Koehler's view that "good teaching requires an understanding of how technology relates to pedagogy and learning content". With pedagogical practice in mind, it is not what technology can do (generally); it is the impact of this upon teaching and learning in the eyes of both teachers and students. Koehler, Mishra and Yahya (2007) focus on the „core" areas of knowledge: Content, Pedagogy and Technology. These core elements connect and interact with each other, in a dynamic and transformational equilibrium.

The role of the course designer is to select the appropriate balance between Content (C) (subject matter specific to the course), Technology (T) (e.g. digital devices, interactive materials stored in a VLE) and Pedagogy (P): (teaching, learning and assessment activities appropriate to the respective pedagogical approach).

Figure 1: *The Technological Pedagogical Content Knowledge (TPCK) conceptual framework (Koehler, Mishra and Yahya, 2007)*



The TPCK strongly supports the view that e-learning should not be seen as an adjunct or a new paradigm, but as an integral part of educational delivery closely aligned with the learning outcomes and pedagogical approach selected by the teacher. In order to achieve a close alignment between our pedagogical approach and our use of technology, we set out to construct a Digital Learning Framework (DLF) with the purpose of indicating how specific technological devices and systems can be used to enhance any learning environment. For the purposes of this paper, and since content knowledge depends critically on the specific subject knowledge and skills to be acquired in any given academic programme, we leave aside the question of content knowledge. In the following section we firstly explain the theoretical framework on which we base our pedagogical approaches, before going on to explain how we arrived at our DLF.

THEORETICAL FRAMEWORK

In our teaching at UoG, we incorporate Active Learning pedagogies based on constructivist principles (Duffy and Jonassen, 1992; Gergen, 1995; Savery and Duffy, 2001), which are usually contrasted with more traditional, teacher-centred or didactic pedagogies (Jonassen and Land, 2000; Meyers and Jones, 1993), which imply the transmission and recall of knowledge from teacher to individual students. Originally adopted in medical schools to train doctors to pose their own questions and develop problem-solving skills (West, 1966), constructivist pedagogies such as Problem-Based Learning, Inquiry-Based-Learning, Simulations etc. have been developed in many HE institutions, particularly in medical, engineering and business faculties in order to provide opportunities for learners to develop practical skills in open-ended and collaborative learning environments which are as close as possible to authentic working contexts.

In constructivism an important metaphor is that of the conversation or dialogue (Gergen, 1995), in which issues are discussed, meanings negotiated and decisions taken over strategies for further investigation. Active Learning pedagogies therefore involve students in actively shaping their learning experience. This conceptualisation contrasts with objectivist or didactic approaches, in which knowledge is transmitted between people, and in which the teacher's role is often seen as "delivering knowledge to the uninitiated". Active Learning pedagogies therefore underpin the design of courses in which collaborative learning can take place and in which students have opportunities for actively shaping their learning outcomes through interactive engagement.

AL pedagogies have serious implications for the role of the teacher, who is now seen as a "coordinator, facilitator, or resource adviser, that is, as one who enables students to marshal resources" (Gergen, 1995: 32). This diffusion of the authority of the teacher also requires the student to actively engage with the learning process and thereby, to some degree, to "establish the contours" (Gergen, 1995: 32) of their curriculum. For this new relationship to work successfully, it is important for both to be aware of the principles on which AL pedagogies are based. For example, Savery and Duffy (2001) show how the theoretical principles of constructivism can underpin course design, and propose Problem-Based-Learning (PBL) as one of the best examples of a constructivist learning environment. They base their constructivist pedagogy on three primary principles (in italics below):

1. Understanding is in our interactions with the environment. This is the principle that what is learned cannot be separated from how it is learned since learners are involved in constructing their knowledge.

2. Cognitive conflict or puzzlement is the stimulus for learning and determines the organisation and nature of what is learned. The principle of cognitive puzzlement is in stark contrast with the gradualist and atomistic view of learning typical of traditional didactic approaches, where learners are expected to master each item before going onto the next.

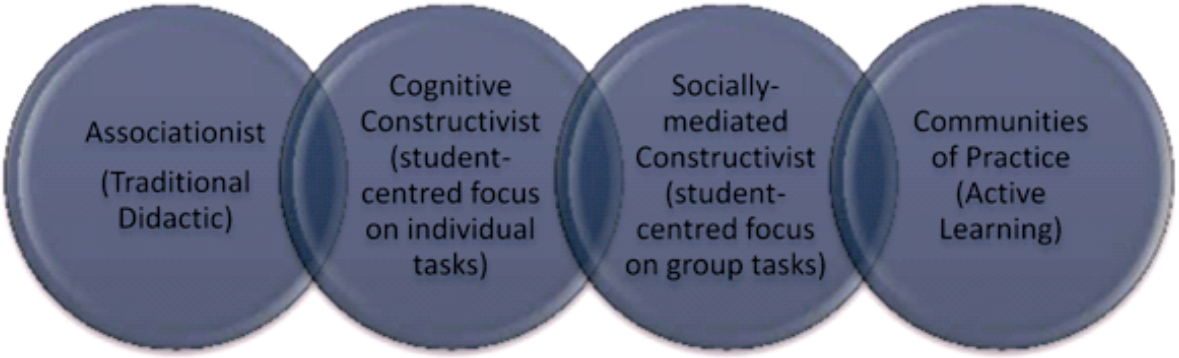
3. Knowledge evolves through social negotiation and through the evaluation of the viability of individual understandings. This principle stresses the importance of the social environment in the constructivist framework since in our search for viable interpretations of messy situations, we test our constructions against those of our co-learners.

The emphasis in constructivist course designs on maintaining the complexity of authentic working environments is contrasted by Spiro et al. (1992:57) with "traditional" learning environments, which are "unrealistically simplified and well-structured". Ill-structuredness can therefore be seen as a salient feature of Active Learning environments,

one which deliberately exposes students to the uncertainties supposedly found in the real world. Whilst acknowledging that there is considerable overlap between the two extremes and many intermediate positions, AL pedagogies might be usefully conceived as contrasting with traditional (didactic) pedagogies. In this way, traditional didactic pedagogies can be seen as based on a well-structured and pre- determined curriculum which is effectively transmitted by the teacher to the student. By contrast, AL pedagogies might be seen as based on an ill-structured and indeterminate curriculum which is facilitated by the teacher, but essentially negotiated among students.

Whilst we see constructivist learning principles as distinct from the more positivist principles often associated with traditional or didactic pedagogic approaches, we concede that, in practice, most successful classroom practices include a blend of approaches and that the various approaches should be seen as overlapping areas along a continuum rather than being mutually exclusive. We find the theoretical perspectives on learning noted by Mayes and de Freitas (2004) very useful and for clarification plot them (Figure 2) against a continuum of pedagogical approaches from Traditional Didactic to Active Learning.

Figure 2. *Learning Theories (based on Mayes and de Freitas, 2004)*



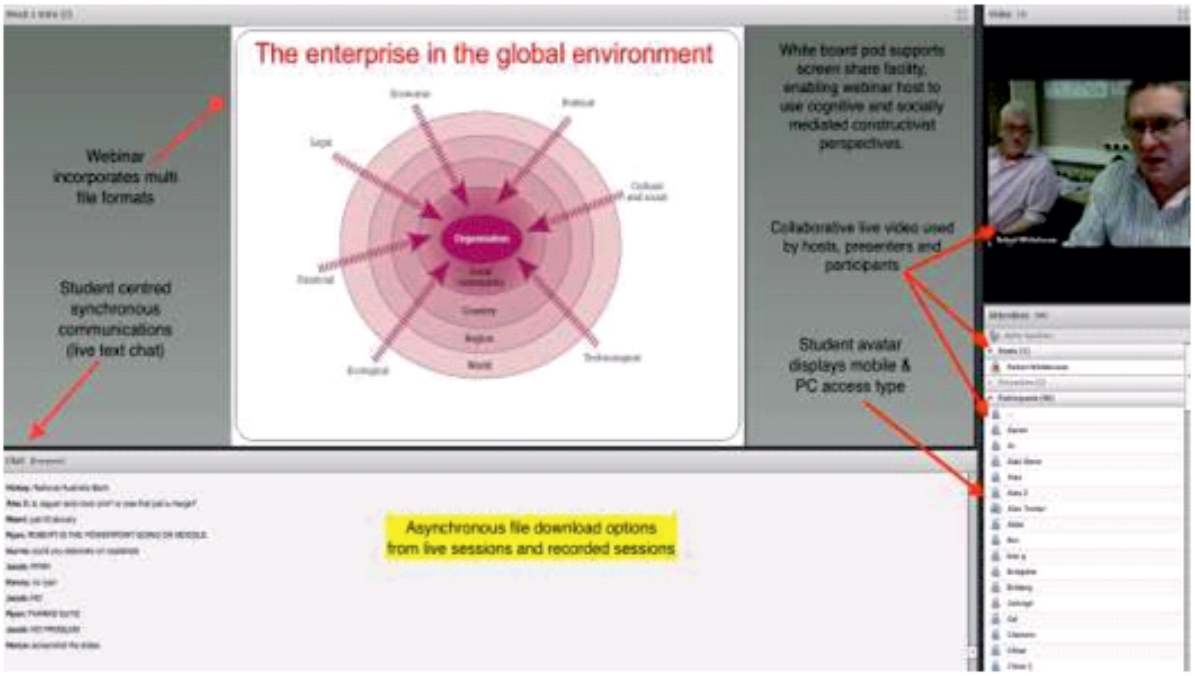
No claim is made here that these categories are either individually exclusive or collectively exhaustive, or that any single approach is always better than the others. However, as a heuristic, this framework helped us to design our classroom approaches with an emphasis on Active Learning pedagogies characterised by student ownership of learning, ill-structuredness of tasks, active discussion and authenticity (a focus on real world practice). Within the DLF we view Active Learning pedagogies as seamlessly combining elements of the other three in order to promote deep and reflective learning.

MAKING THE BLEND

Asynchronous content consumption through the VLE, is now a standard practice in many HE institutions (Knight, 2009) to provide supplementary static media support which students can access at any time of their choosing. Examples include storage of slides, articles and links to activities which students can access outside the classroom at a time of their choosing. On the other hand, synchronous content such as webinars use multi-user collaborative platforms and which students can access from anywhere at specific times. Including synchronous support in a predominately asynchronous environment requires a significant mind-shift and proved rather challenging at first both for us and our students.

Having selected a multi-user platform – Adobe Connect; to support one of our undergraduate Business Management modules (BM4115), we assumed that learners who had used FaceTime (Apple OS) and Skype (Microsoft) would be able to adapt to another peer-to-peer platform with few or no impeding issues. Upon reflection, we did not appreciate the impact of the formal learning environment, compared to the informal one-to-one (social media) relationship-based communications used frequently via smart phones. Since our learners were reticent in asking questions, in line with Rutter's research (2006) and joining group discussions (Richter 2011), we used live text chat (and screen share) to encourage and help overcome initial communication barriers and in order to assess the impact of this we analysed the student feedback, paying particular attention to the extent to which students felt the online tutorials had enhanced their learning experience.

Figure 3: *An online seminar using Adobe Connect*

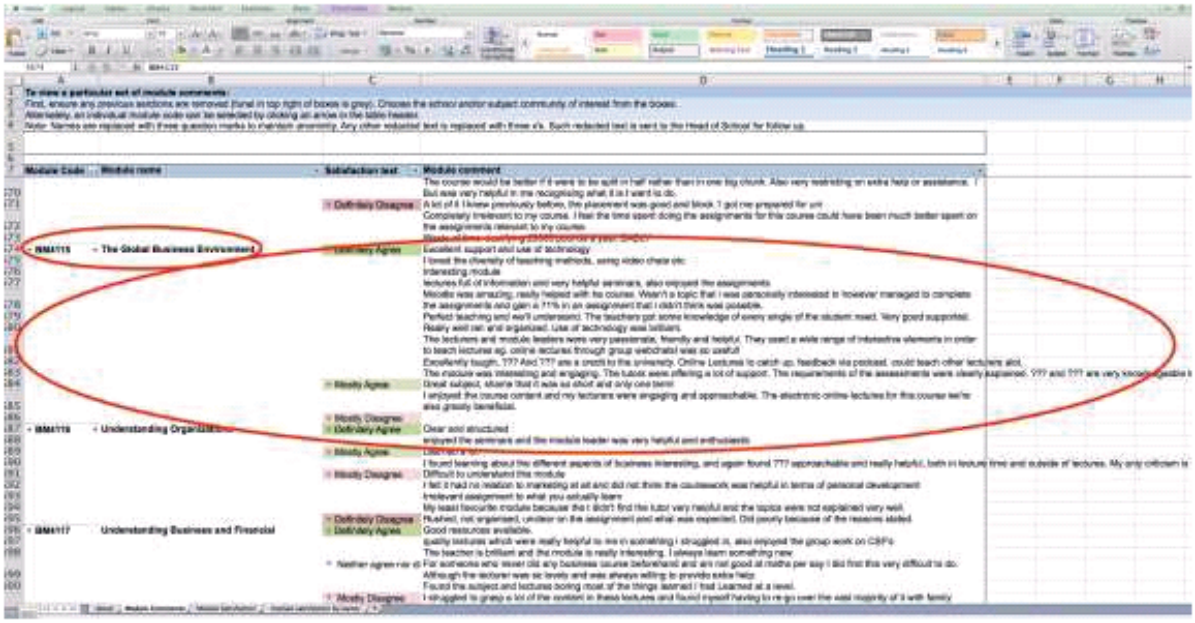


We also used Google Hangouts (Figure 4) to host 30- 40 minute individual or small group tutorials. Figure 4 illustrates an example of a live recording produced for department staff development „Bring and Share" day. It offers a selection of features of a Hangout session with two international learners.

Figure 4: *A Google Hangout session*

Creating efficient and useable asynchronous and synchronous pedagogies, has required much planning and research, particularly important when attempting to support learners whose first language is not English. Initial feedback from the research cohort included some pertinent examples, which helped in the construction of the framework and fundamental in scaffolding a robust design framework for the University of Gloucestershire's hybrid module design. Figure 5 offers formal evidence extracted from the Universities ACE (Annual Course Evaluation) survey conducted with the whole year cohort of students who studied BM4115 The Global Business Environment hybrid module.

Figure 5: *Examples of student feedback.*



Learner comments as highlighted in Figure 5 concur with feedback comments conducted at module level. Research candidates (2015/16 cohort) indicated that frequent live synchronous support (weekly 45 minute sessions) helped „maintain their engagement and momentum" in learning the module content. Students would often ask questions via the live text chat regarding the module assessment, feedback from the cohort suggests that this socially mediated (constructivist) method was particularly conducive in satisfying the concerns of the many, when answering the question posed by one member of the collective on-line cohort. The results support the findings of Koehler et al. (2007), and demonstrates that a focus on „how they learn" is just as imperative as „how we teach".

THE DIGITAL LEARNING FRAMEWORK (DLF)

The DLF (Figure 6) is designed to assist teachers in understanding how digital content and device applications can support their respective pedagogical approach.

Figure 6. *The Digital Learning Framework*

Theoretical perspective	**Pedagogic approach**	**Classroom activities (examples)**	**Technology Level**	**Digital materials and devices**
Communities of Practice	Active Learning	Ill-structured PBL and group tasks and simulations	Exemplar (Ideal mix of synchronous and asynchronous devices)	Any combination of the below
Socially-mediated Constructivist	Student- centred (focus on group tasks)	Students as producers: debates; well-structured team-based simulations	Depth-level (dispersed collaborative platforms)	Multi-user virtual environments e.g. collaborative blogs; live text chat; collaborative wikis and discussion forums; Mobile/tablet integration (pre-loaded content); peer review.
Cognitive Constructivist	Student-centred (focus on individual tasks)	Seminars and guided discussions;	Interactive media hosted on VLE	Bespoke content; Web 2.0 e.g. Kahoot, Socrative, Educreation; Screen-casting (live module handbook); prezi; Padlet; electronic voting systems; self-managed e-Portfolio e.g. Mahara; streamed video capture; digital stories; desktop publishing; self-assessment quizzes.

Associationist	Traditional didactic	Lecture; guided reading; guided audio-visual tasks	Repository (static media hosted on VLE)	VLE Pdf., Word and ppt. documents; links to 3rd party content; smart boards; audio recorded assessment feedback

The Repository level is baseline expectation for the digital generation and indicates the range of digital materials and devices which are often deemed appropriate even within traditional didactic learning environments. The DLF progresses through more interactive web 2.0 devices used in predominantly individualised student-centred learning environments, to the kinds of multi-user platforms used for collaborative and synchronous tasks where students may be required to produce re-usable learning artefacts through blogs, wikis and discussion forums. The Active Learning approaches such as PBL, EBL and simulations often aim to combine all of the above using an ideal mix of synchronous and asynchronous devices.

We based our DLF on the results of our own experience in incorporating technology into our courses, as well as looking at a range of published case studies (see appendix). This DLF forms the basis for a university-wide training artefact aimed at helping course designers in any discipline consider how best to align their technology use with their pedagogical approach.

CONCLUSION

On considering how to design a DLF, it is important not to assume that technology-enhanced learning is a new paradigm which challenges the pedagogical approaches currently in use. Rather, it is important to encourage course designers to consider how best align their technology use with their pedagogical approaches. For further investigation we would like to assess how this DLF is received by course designers across a range of subjects.

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APPENDIX A: CASE STUDIES AND FURTHER READING

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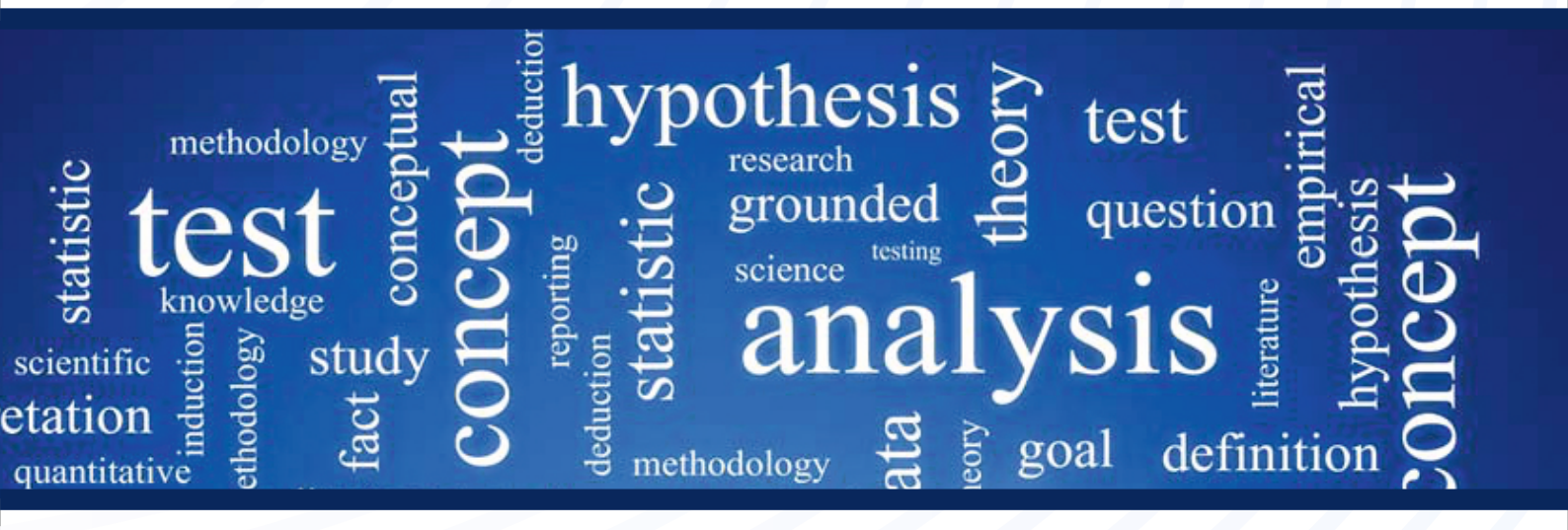
Tell me and I forget,
Teach me and I may remember,
Involve me and I learn.

Folklore



CONTACT INFORMATION

Larisa Bugaian
National Coordinator
Technical University of Moldova
Stefan cel Mare 168
Chisinau, MD-2004, Moldova
Tel: (+373) 22 23 37 05
E-mail: larisa.bugaian@adm.utm.md
www.pblmd.aau.dk