

Problem based learning in entrepreneurship education- opportunities and challenges

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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-centered teaching and learning techniques.

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

Keywords

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

Track 2: Changing the relationship between the learner, the teacher and stakeholders

Problem based learning in entrepreneurship education- opportunities and challenges

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”*.¹

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”*². 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”*³, 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.*⁴

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.

¹ *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>

² Mintzberg H. *Manager, nu MBA*. Trans. București: Meteor Press, 2004, p. 126

³ Drucker P. *Inovația și sistemul antreprenorial*. Trans. București: Enciclopedica, 1993, p. 24

⁴ 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 entrepreneurship⁵

	Characterized
Knowledge	<ul style="list-style-type: none"> • ability to identify available opportunities for personal, professional and/or business activities • be aware of the ethical position of enterprises
Skills	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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

⁵ 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

in their field of study- to make the link between them, notice them in context and use them naturally.”⁶

*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.*⁷

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 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.*⁸

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.⁹

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.

⁶ Mintzberg H. *Manager, nu MBA*. Trans. București: Meteor Press, 2004, p. 181

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&>

⁸ 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>

⁹ Uden, L., Beamont ,C. *Technology and Problem-based Learning*. Information Science Publishing, 2006, p.33

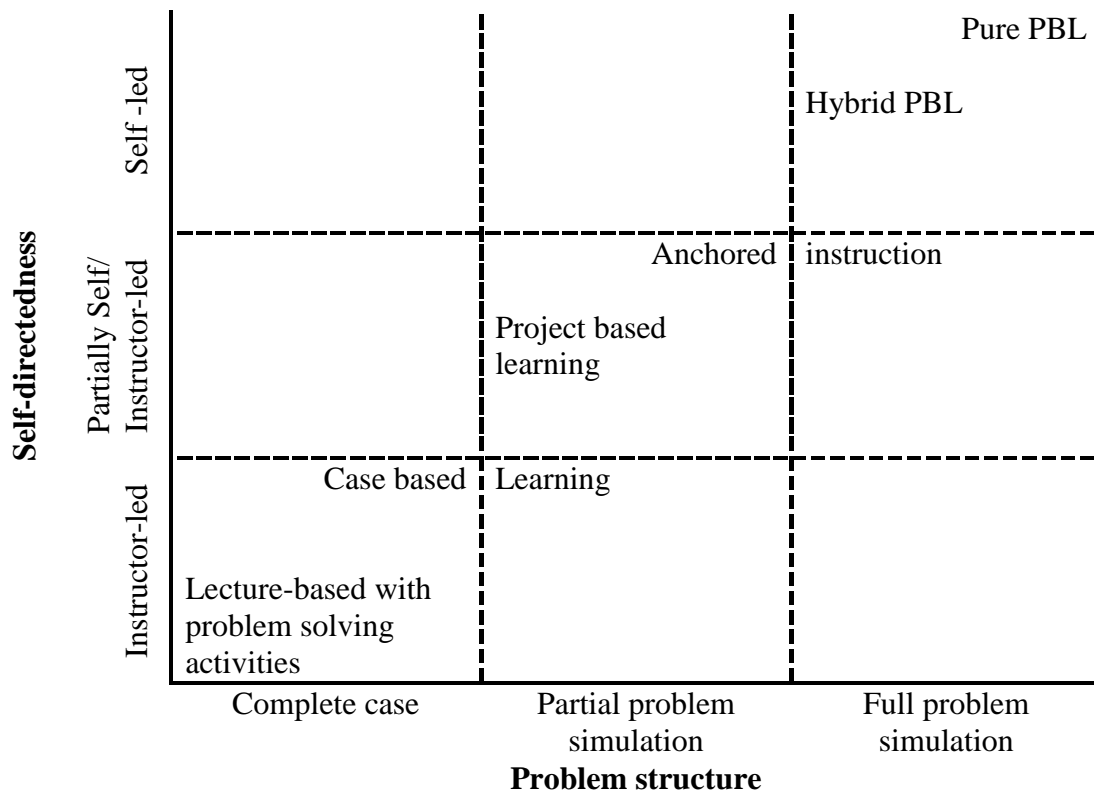


Fig.1 Six representative PBL models in Barrows`PBL taxonomy¹⁰

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”.*¹¹

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	+++

¹⁰ Cho, Young Hoan (et al.) *Authentic Problem Solving and Learning in the 21st Century: Perspectives from Singapore and Beyond*, 2015 - 368 pages, p. 82

¹¹ 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.

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*”.¹²

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.

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.

¹² Edward B. Roberts, Fiona Murray, and J. Daniel Kim *Entrepreneurship and Innovation at MIT Continuing Global Growth and Impact*, 2015, p. 25

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.*¹³(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 follows¹⁴:

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.

¹³ White, H. (1995). "Creating problems' for PBL." Accessed August 24, 2016, <http://www.udel.edu/pbl/cte/jan95-chem.html>

¹⁴ 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>

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)¹⁵

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.

¹⁵ 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

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 where 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 problem, to identify, to evaluate, to organize and to use the data in an efficient way to solve the problems that they stumble upon".¹⁶

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".¹⁷ 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.

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.

¹⁶ *Învățământul centrat pe student ghid pentru studenți, cadre didactice și instituții de învățământ superior*, trans. 2010, p. 30, Accessed August 24, 2016, <http://www.anosr.ro/wp-content/uploads/2012/07/2012-Toolkit-ICS-cadre-didactice1.pdf>

¹⁷ Mintzberg H. *Manager, nu MBA*. Trans. București: Meteor Press, 2004, p. 252

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