PROBLEM-BASED LEARNING AS AN INSTRUCTIONAL METHOD:
IMPLEMENTATION PROJECT FOR EDUCATION STUDIES OF UNIVERSITY
/Case study at the Lithuanian University of Educational Sciences/

Targamadze V., Michaelsson A.
Lithuanian University of Education Science, Lithuania

Abstract
The article analyses the implementation aspect of a problem-based learning as an instructional method in a field of education studies. Its aim is to design an implementation project of the problem-based learning as an instructional method at the Lithuanian University of Educational Sciences. Subject – problem-based learning as an instructional method in a perspective of implementation at the Lithuanian University of Educational Sciences. A novelty of the present article is that it attempts to present a potential implementation project of the problem-based learning as an instructional method at the university bachelor’s degree study programmes of education. It is composed of two content developing parts: concept of the problem-based learning as an instructional method and design of an implementation project of the problem-based learning as an instructional method at the university bachelor’s degree study programmes of education. The article presents such designed project composed of six interacting stages and their significance is discussed.

KEYWORDS: problem-based learning, instructional method, education studies.

Introduction
One of the imperatives of the XXI century in Lithuania is implementation of a paradigm focused on a student. At first sight, it seems to be not a highly complex task, as to design such system in theory, where all of its elements would be student focused is not difficult, however, to design such system and implement it in post-soviet countries is not simple, as it is necessary to readjust from the pedagogue-centred position to a student-centred teaching. Such position is supported by the documents issued in Lithuania, for ex., Art. 18.4 of the National Education Strategy 2013 – 2022 (2012, draft), which substantiate the reasoning that it is necessary: “to enable a person to independently manage own career by providing individualized services of various forms in an actual and virtual environment, developing specific skills and potential, important competencies, forming a consciousness in selection of a life path (career) and a continuation of education and development. Initiate and support a qualitative promotion of occupations and professions, especially the ones having potential prospects”.

A subject of student focused teaching is not new. It has been discussed by the scientists of Lithuania and foreign countries. Each of them highlights specific aspects, for ex., active method (Liesienė L., 2012, etc.), process (Kirikova L. Šveikauskas V.; 2007, etc.), problem-based learning (Barrett T., 2005; Targamadzė V., Gražienė V., 2012, etc.), liberalization of education (Shor I. and Freire P., 1987, etc.).

Novelty of the present article is that it attempts to present a potential implementation project of the problem-based learning as an instructional method at the university bachelor’s degree study programmes of education.

Aim of the article – to design an implementation project of the problem-based learning as an instructional method at the Lithuanian University of Educational Sciences.

Subject – problem-based learning as an instructional method in a perspective of implementation at the Lithuanian University of Educational Sciences.

Research methods: analysis of scientific literature and document analysis, modelling.

The article is significant in a theoretical aspect, as a theoretical project of implementation for the problem-based learning as an instructional method of education study programmes is designed. In a practical sense, such article is relevant as it establishes a basis for use of the above named project in a specific study programme.

Concept of the problem-based learning as an instructional method

Problem-based learning (PBL) is not a new subject in a field of science. However, most of the time, it is understood as a strategy, technique or technology (more by Targamadzė V., Gražienė V., 2012). According to V. Šveikauskas (2005, 885), analyzing the problem-based learning, he claims that “the problem-based learning is distinguished from a non-problem-based (traditional) learning by three key principles: 1) a problem acts as an intrinsic motivation to study; 2) such is an educational method, and not
an isolated instructional technique; 3) it is a student focused method.” Of course, we can agree with such opinion if we do not treat the problem-based learning as an instructional method, which encompasses both the study structure and a process. As noted by V. Šveikauskas (2005, 890), the problem-based learning can be interpreted as an instructional method, which involves students into confrontation with problems, motivating their learning; such is considered an instruction when perception and a resolution of a problem are outcomes of efforts contributed. The author presents different approach to a problem-based learning – as a study method or technique and as an instructional approach. Such is used medical studies at the University of Health Sciences. Therefore, it is unsubstantiated to claim that a problem-based learning is not analyzed nor used as an instructional method at the Lithuanian University; as such attempts are witnessed at the University of Health Sciences. However, in a practice of education related study programmes such method is not used, but the problem-based learning as a method in general is used by a number of instructors (Targamadzė V., Gražienė V., 2012). Therefore, a question is: what are the objectives of the problem-based learning? Kirikova, L., Šveikauskas (2007), having analyzed objectives of the problem-based learning presented by a number of authors, formulate them as follows:

1. Acquisition of knowledge:
   - Organization of a more advantageous learning direction, in order everything that was learned would be applied in a clinical job related tasks later in life.
   - Application of theoretical knowledge in resolving clinical-based problems.
   - Increase of received knowledge by self-directed learning.

2. Development of problem solving skills using acquired knowledge (skills, which later on might have influence on a professional clinical work and improvement).

3. Development of self-directed learning skills in order for such to become a lifestyle.

4. Promotion of critical thinking.

5. Development of sensitiveness to the patients’ needs (medical as well as psychosocial).

6. Motivation to apply information for solving the main patient problems.

7. To introduce students with:
   - Learning methods.
   - Understanding that their education is important.
   - Methods suitable for self-directed learning. (Kirikova L., Šveikauskas V., 2007,4)

Such objectives are applicable for education studies, as basically each of the seven presented position is related to preparing an educator for professional activities, for ex., application of theoretical knowledge, in solving problems originated in the field of education, considering that an educator needs to improve and develop constantly and one’s knowledge change, therefore, self-education plays a significant role as well.

Objectives are significant pursuing to design an implementation project of the problem-based learning as an instructional method, however, a methodological approach of the problem-based learning as an instructional method is also necessary. As T. Barrett (2005B) states “problem-based learning is not a mere technique or fashionable fad. It is a total approach to higher education”. Therefore, a conception of his study strategy is necessary which could be illustrated in a following diagram:

**Fig. 1.** Problem-based learning a total approach to learning: Turning the Wheel of PBL (Barrett T., 2005B, 4)
The diagram presents six interrelated composite elements of the problem-based learning portraying an integrated approach to such method. Such composite elements comprise curriculum design, tutorials, PBL compatible assessment, philosophy, evaluation, and research. Every single element carries a significant value and should be discussed in detail (more by Barrett T., 2005 A and B). Having in mind that each element should resound the problem-based methodological approach, a philosophy of the problem-based learning will be discussed in detail.

According to T. Barrett (2005 A) it is based on several principles:

Conception of P. Freire dialogue discusses “What is dialogue in this way of knowing? Precisely this connection, this epistemological relationship, the object to be known in one place links the cognitive subjects leading them to reflect together on the object. Dialogue is the bringing together of the teacher and the student in the joint act of knowing and reknowing the object of study. Then instead of transferring the knowledge statically, as a fixed possession of the teacher, dialogue demands a dynamic proximation towards the object” (Shor I. and Freire P., 1987, 100). What matters is a creation occurring at the moment of a dialogue – new knowledge created in a pedagogical interaction between the pedagogue and a student. Besides the P. Freire dialogue, the problem-based learning as an instructional approach is based on “cognitivism, social constructivism and postmodernism providing theoretical foundations for understanding PBL” (Barrett T., 2005A,21). Cognitivism is a mental process, during which a connection between the old and new concept occurs. Social constructivism also carries a significant value, which, according to T. Barrett (2005A,21), states that “PBL has a social constructivist view of learning. It sees learning as something that results from the learner’s actions and the role of the PBL tutor is to enable and encourage learners to construct their knowledge together”. Therefore, social constructivism creates an environment, relationship between a student and a tutor. It is important that such environment would stimulate constructive cooperation between people participating in the interaction process. Another principle of methodological approach is a postmodern attitude which states that “A key point in the connection between PBL and postmodernism is that there is a fit between PBL and changing postmodern concepts of knowledge” (Barrett T.,2005A,21). All of the four PBL principles are significant to the philosophy of the problem-based learning. To be more precise, they comprise the PBL philosophy as an instructional method. They should be followed in designing the remaining parts of the problem-based learning as an instructional method: curriculum design, tutorials, PBL compatible assessment, philosophy, evaluation, and research.

Design of an implementation project of the problem-based learning as an instructional method at the university bachelor’s degree study programmes of education

Instruction of educators at a university level is very specific, as specialists should be prepared for professional activities; therefore, their theory-based preparation should be integrated with the pedagogical practice. For this reason, the problem-based learning could benefit a synthesis of theory and practice based knowledge and skills as well as develop moral values of an educator, necessary to work in a student focused paradigm. Having in mind that instruction of a teacher is conducted based on a parallel and a consecutive model, the present article chooses the consecutive model of the University of Health Sciences for implementation of the design of the problem-based learning as an instructional method at the university bachelor’s degree study programmes of education (it is the largest educational institution with the study program of education). Such project will be easily adapted to other institutions developing programs of education.

Design of the implementation project for the problem-based learning as an instructional method at the university bachelor’s degree study programmes of education should commence with the first step – to gather a group which would explore a benefit of use of the problem-based learning as an instructional method in the program.

Second step – design of the research methods for the situation, pursuing to identify advantages and possible drawbacks of application of the problem-based learning as an instructional method. Since in respect to the program, this would be a systemic innovation, it is obvious that it is necessary to analyse necessary resources in detail and consider the contribution and benefits. For such purpose SWOT method is a qualified choice. In any way, the research instrument for the benefit of use of the problem-based learning as an instructional method in respect to its prospects should be a group of specialists, administering and implementing the program as well as other persons engaged in development and implementation of the program. Provided that the instrument has inaccuracies, it would be necessary to correct it and maybe even coordinate with the above mention target groups once again. Only having
coordinated the research instrument with the target groups, it is allowed to proceed forwards and take a third step – conduct a research of advantages and drawbacks in relation to use of the problem-based learning as an instructional method in a program, identify positive and negative sides of its implementation, and solutions.

During the fourth step, it is important to discuss the obtained research results with people administering and implementing the program as well as people concerned with its implementation. Provided it becomes necessary, it is possible to refer to other inside or outside experts. Analysis of research results and their use for further solution making should be designed in respect to the aspect of benefit gained in application of the problem-based learning as an instructional method, assessing various aspects (objectives of the program implementation, resources and etc.) and only having assessed the positive and negative aspects of application of the PBL as a learning strategy in studies of education, it is possible to proceed with the fifth step – decision making.

During the stage of decision making it is advisable to present an implementation scenario of the problem-based learning as an instructional method in the program. It should be thoroughly analyzed in every aspect possible – legal (change of documents, regulating studies), resources (readiness of an educator as a tutor, preparation of mentors, finances, financial resources etc.) and others. Having analyzed the presented scenario, usually it needs to undergo certain improvements or it is necessary to design an alternative to the previous one, therefore, it is likely that such scenario will be once again considered, accepted or declined, if it appears that application of PBL as an instructional method in a study program of education is irrational. This is quite understandable as this is not easy – it is rather complicated to prepare for a creative integration of pedagogical practice and theory of the program being regulated by applicable documents in use of the problem-based learning. Having approved the project regarding application of PBL as an instructional method, its implementation takes place. Based on a proactive management during the design as well as analysis stage of the above named scenario, we can refer to: Success factors for implementing PBL (Barrett T., 2005, 22) (See Fig. 2).

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<tr>
<th>Philosophical factors</th>
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<tr>
<td>• An understanding of the philosophical principles underpinning PBL</td>
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<td>• A commitment to the philosophy of PBL (Little, 1997; Margeston, 1991; Barrett, 2001)</td>
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<th>Design factors</th>
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<tr>
<td>• Comprehensive curriculum design (Conway and Little, 2000)</td>
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<td>• Well designed problems (Gijselaers and Schmidt, 1990; Schmidt and Moust, 2000)</td>
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<td>• Assessment compatible with PBL and the specific discipline/profession (Savin-Baden, 2004; Raine and Symons, 2005)</td>
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<td>• Scheduled independent study time (Fincham and Schuler, 2001)</td>
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<th>PBL tutoring factors</th>
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<td>• Small group size (Wilkerson, 1996)</td>
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<td>• A realistic acceptance of the role change (Little, 1997)</td>
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<td>• Effective tutoring skills (Poikela, 2005)</td>
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<td>• The ability to model process skills (Little, 1977)</td>
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<td>• Frequent opportunities for students to gain feedback (Little, 1997)</td>
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<th>Staff and student induction factors</th>
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<td>• An acceptance of the importance of student induction to PBL and that students will take time to develop PBL process skills and may need to change their assumptions about learning (Little, 1997)</td>
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<td>• Substantial appropriate staff development (Conway and Little, 2000; Murray and Savin-Baden, 2000; Richardson, 2005)</td>
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<th>Management factors</th>
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<td>• A pragmatic and realistic approach (Little, 1997)</td>
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<td>• Institutional and management support (Little, 1997)</td>
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<td>• A PBL coordinator and administrative support (McLoughlin, 2005)</td>
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Fig. 2. Success factors for implementing PBL (Barrett T., 2005, 22)
The sixth step – implementation of the problem-based learning as an instructional method in a study program of educators. For that purpose, it is advisable to refer to a monitoring system, which should be included in the previously mentioned scenario. This would establish a possibility to search for a potential of implementation improvements of the scenario during the stage of observation.

Having summarized ideas presented in the article, we may conclude that:

Problem-based learning is as an instructional student focused method and such complies with objective of studies of the Lithuanian universities, which is imperative in documents, regulating the studies and activities relating to it. At the same time, it would be a systematic innovation promoting to reform the studies in respect to a structural aspect and content by integrating theory and practice.

In order to conceptualize the problem-based learning as an instructional method it is necessary to comprehend it philosophy, which is based on four principles: Freire dialogue, constructivism, social constructivism and a post-modern theory of knowledge dynamics. All of these principles should be approach in a holistic perception and should be complied with in designing elements of the problem-based learning as an instructional method.

The implementation project of the problem-based learning as an instructional method in a study program of educators outline six interrelated stages: group formation; design of methodology for situation analysis; research of benefits and drawbacks of use of the problem-based learning as an instructional method in a program, discussion of research results, decision making, implementation of the problem-based learning as an instructional method. Each of the stages is an integral part of the project and, in cases it becomes necessary, might be adjusted.

References


PROBLEMINIS MOKYMASIS KAIP STUDIJŲ STRATEGIJA: DIEGIMO PEDAGOGUS RENGIANČIOSE UNIVERSITETINĖSE PROGRAMOSE
/Lietuvos Edukologijos universiteto atvejis/

Targamadze V., Michaelsson A.

Santrauka