
PROBLEM - BASED LEARNING AND COMPETENCY DEVELOPMENT

Aušra Stepanovienė*

*Mykolas Romeris universiteto Viešojo saugumo fakulteto Humanitarinių mokslų katedra
Putvinskio g. 70, LT-44211 Kaunas
Telefonas 303664
El. paštas: ausrastep@mruni.eu*

Annotation. Problem-based learning is a student-centered educational innovation in which students learn about a subject in the context of complex, multifaceted, and realistic problems. The features and principles of problem-based learning are often corrected by empirical application in a particular educational institution. When starting implementing problem-based learning, a higher educational institution faces the diversity of approaches determining the possibilities for flexible adjustment of problem-based learning for the context in which it is being applied. The paper deals with the main attributes of problem-based learning and their variations. It reveals the links between the features of problem-based learning and competences being developed. The paper summarises theoretical insights and practical experience which serves as a starting point for a creative way of teachers and students to implement and/or improve problem-based learning in their institution of higher education.

Keywords: problem-based learning, competencies, application

INTRODUCTION

Problem-based learning is one of innovative methods satisfying requirements raised for modern higher education. A few decades ago it was propagated as the method for improvement of traditional learning. Today majority of practitioners and theoreticians conceptualize problem-based learning wider as the system and certain education philosophy which includes the whole learning, starting with learning environment and tasks' modelling and concluding with learning (self) evaluation, and also including principles that emphasize attention focusing, students and their activity (Šveikauskas, 2007¹; Lenkauskaitė, 2010²; Gedvilienė, 2011³).

Problem-based learning has deep traditions in pedagogy history. However, when speaking about problem-based learning at higher education institution, scientists relate origin of problem-based learning with studies of biomedicine that had been started in Medicine School, McMaster University, Canada in 1960. Today problem-based learning is invoked in

¹ Šveikauskas, V., (2007). Probleminio mokymosi procesas. Mokomoji knyga. Kauno medicinos universitetas, pp.1-18.

² Lenkauskaitė, J. (2010). Probleminio mokymosi taikymas aukštajame moksle, realizuojant besimokantiems prasmingas studijas. *Profesinės studijos: teorija ir praktika*. Nr.6. Šiauliai: VšĮ Šiaulių universiteto leidykla.

³ Gedvilienė, G.(2011). Lyderystė mokymosi procese. Aktyvuoto ir probleminio mokymosi modeliai VDU. Available at: www.bmt.smm.lt/.../Prof.-G.-Gedviliene-Lyderyste, pp.1-30. [Accessed August 30 2012].

various disciplines. It assumes new features as application area expanded. Barrows (1999)⁴ has observed that it can be a lot of combinations of problem-based learning elements that have different impact on competencies developed for students.

When analyzing the experience of various higher education institutions applying problem-based learning it was observed that each of them adapted problem-based learning by adjusting it to their own context. It can be spoken analogously about different disciplines where applied problem-based learning assumes new characteristics. However, leeway to apply problem-based learning without thrusting it into frames of educational process might cause negative consequences – leading to crisis of problem-based learning when various practices with only few (not necessarily essential) features of problem-based learning are subsumed to this concept. Therefore before starting to implement problem-based learning it is necessary to get acquainted with its essential elements that can be the basis for different variations in particular educational practice.

It is relevant both in theoretical and practical aspects to analyze correlations between features of problem-based learning at higher education institution and competencies of students educated by this method. Theoretical relevance is related to ability to analyze and substantiate deposit of problem-based learning to the change of teaching paradigm into learning paradigm. When speaking about practical relevance it is important that before applying problem-based learning in university study programs, process of problem-based learning would be planned and possible variations would be estimated according to present situation conditioned by social, economical and cultural context. It is also very important to predict potential results that could be achieved during problem-based learning. Continual (self) evaluation of students' competencies allows both assessing the particular level of student's achievements and affording ground to cogitate educational process and improve it when seeking for the quality of higher education.

Theoretical insights and practical experience validate that problem-based learning allows implementing learning which is oriented towards student and helps to develop student's competencies. These arguments reduce doubts concerning application of problem-based learning and enhance intention to trial it in one's educational institution.

The aim of the research is to reveal features of problem-based learning and developed students' competencies highlighting their links.

⁴ Barrows, H.,S. (1999). A taxonomy of problem-based learning methods. *Handbook on problem-based learning*. P.19-27. New York: Forbes.

In order to accomplish the aim stated above, the following tasks have been defined: on the basis of scientific resources analysis to describe the diversity of problem-based learning features; to estimate students' competences gained in didactic problem-based learning system.

The method of the research includes the analysis of scientific literature. Scientific theoretical discussion about features of problem-based learning and developed competencies is analyzed.

CONCEPTION AND MAIN FEATURES OF PROBLEM-BASED LEARNING AT HIGHER EDUCATIONAL INSTITUTION

The most general definition of problem-based learning reveals that it is the method under which students learn by analyzing and solving complex problems of real world with teacher's help (Savery, 2006)⁵. Many aspects of problem-based learning might have their one variations ensuring that problem-based learning is implemented not only under predetermine rules but also match with real context in which it is applied. Thus it is ensured that problem-based learning is not imposed but significant and vital educational innovation for its participants.

It is usual in conventional learning that study process runs studying predetermine topics that structure learning program. Studies following problem-based learning method are initiated and managed by real world problems that do not have a single and clear solution. These problems are called underdefined, complicated and unstructured. Namely problems of such origin are met in real world. According to Weber (2007)⁶ problem should not be understood as obstacle. It is spoken about the case, phenomenon, question, project when a way to achieve the set goal is unknown.

Considering real unstructured problems during problem-based learning it is tried to study different disciplines by integrated method whereas in traditional study program every discipline exists for itself. Traditional studies refer to knowledge separation into blocks amplifying that it is important to go deep into separate sciences and not to join knowledge into complex structures. According to opinion of problem-based learning exponents who

⁵ Savery, J.,R. (2006). Overview of Problem-based Learning: Definitions and Distinctions. *The Interdisciplinary Journal of Problem-based Learning*. Vol.1, No1,p.9-20.

⁶ Weber, A. (2007). *Problem-Based Learning*. Bern: h.e.p.-Verl.

sustain opposite position it is purposeful to include aspects of other study courses into analyzed cases (Walker, 2009)⁷.

System of problem-based learning supposes that it is necessary to join earlier gained students' knowledge with new knowledge. Therefore it is important to assess students' experience, motivation and gained competencies when choosing problems. Then partial (lectures take place alongside with problem solution) or full-format (there are no lectures) model of problem-based learning is chosen (Forsythe, 2006)⁸. Full-format problem-based learning provides that students only solve problems during studies. However it is not always possible. Such model is hardly implemented because students do not have teamwork skills and practice of raising and verifying hypothesis, etc.

Properly chosen, formulated and presented for students problems are one of the most important aspects of problem-based learning determining its success. Though, this should not be the limitation as it can lead to identification of problem-based learning as learning based on problems' solution. The main goal of the latter learning is to solve the problem correctly while in problem-based learning both the taken problem solution and the whole process of decision making are important.

Studying in small groups is characteristic to problem-based learning, and such learning assumes format of teamwork. According to process of problem-based learning it should be mentioned that ideal group size is 5 – 7 students (Strobel, Barneveld, 2009)⁹. Forsythe (2006)¹⁰ suggests to compose groups with even number of members (6-8 students) that under necessity it would be possible to work in pairs.

Teamwork is directly related to earlier discussed feature of problem-based learning – problem itself. For stimulation of problem work it is important to choose such problem which would motivate students to work together and commonly seek for the set goal. It is recommended to choose such problems that are closely related to students' already possessed knowledge and would have enough allusions motivating students' learning (Marcangelo,

⁷ Walker, A. (2009). A Problem-based Learning Meta Analysis: Differences Across Problem Types, Implementation Types, Disciplines, and Assessment Levels. Utah University. ITLS Faculty Publication. Vol.3, No1.

⁸ Forsythe, F.(2006). *Problem-based Learning: The Handbook for Economics Lecturers*. Available at:<http://www.economicsnetwork.ac.uk/handbook/printable/pbl-v5.pdf>. [Accessed September 2012].

⁹ Strobel, J.,Barneveld, A. (2009). When is PBL more effective? A meta-synthesis of meta-analysis comparing PBL to conventional classrooms. *The Interdisciplinary Journal of problem-based Learning*. Vol.3,Iss.1, Article 4.

¹⁰ Forsythe, F.(2006). *Problem-based Learning: The Handbook for Economics Lecturers*. Available at:<http://www.economicsnetwork.ac.uk/handbook/printable/pbl-v5.pdf>. [Accessed September 2012].

2009)¹¹. When a problem is simple, teamwork is not efficient and does not interest students. If a problem is very sophisticated and students do not have enough knowledge to analyze and solve the problem, a better choice is not the teamwork but tutorial or lecture of an expert. Only fairly sophisticated problems justify students' teamwork where deposit of each student is important to achieve the common solution. Under necessity students' teamwork can be interspersed by teacher's mini-lectures or other teaching forms to achieve the success of problem-based learning.

Students' teamwork is inseparable from self-directed learning (Forsythe, 2006)¹². Only working under this method students can bring significant initiatives into present discussion. Everything what students learn in self-directed learning must be applied in solving problems of the whole group and new analysis. Therefore problem-based learning often is not finished with primary problem solution but is renewed with new research results of individual group members.

Teamwork is not always efficient. To achieve its efficiency it is relevant to manage process of team familiarity that every member would be actively involved into the process constantly having in mind goals of study program supplemented with elements of problem-based learning (Duck, 2008)¹³. Sensuous aspect is also important. Team with notable feeling of separate students' domination and ignorance of other students, negative emotions cannot achieve positive results. Process itself is also very important. Teacher cannot model static problem-based learning process. It is necessary to analyze continually students' communication and to ensure that they would positively seek for common goal and would not be disappointed with their roles.

The role of teacher changes when applying problem-based learning method. As students' sufficiency increases teacher's supervisory functions decrease accordingly. Teacher becomes an assistant. It means that teacher is no longer important in educational process. Particular teacher's support and activity is needed to ensure conditions that students could participate, analyze and solve relevant problems. First of all teacher actively communicating with students choose problems according to knowledge and skills already possessed by students. It is also advisable for teachers to discuss and talk with students on purpose to disclose their roles and reduce the influence of dominant students. Teacher's participation

¹¹ Marcangelo, C. (2009). Problem-based Learning Education Toolkit. University of Brighton, pp.11-14.

¹² Forsythe, F. (2006). *Problem-based Learning: The Handbook for Economics Lecturers*. Available at: <http://www.economicsnetwork.ac.uk/handbook/printable/pbl-v5.pdf>. [Accessed September 2012].

¹³ Duck, J., E. (2008). Whose Group Is It? Anyway? Equity of Student Discourse in Problem-Based Learning. *Problem-based Learning a Research Perspective on Learning Interactions*. P. 75-108. New York: Routledge.

should activate passive students, encourage them to philosophize about problems, suggest and help to formulate tasks for students' learning, raise new hypothesis etc.

Model of senior students as assistants may become significant. These students can help developing skill of junior students, checking level of groups' functioning, seeking for deeper comprehension during discussions. Activity of students who had already heard the same course is efficient because they know well what is going on in the class, what difficulties students meet and how these students can be encouraged, calmed and motivated. Feedback of assisting students is very informative for the teacher who might improve studies plan and process according to provided information.

Model of large audience is also possible when applying problem-based learning although teachers often have doubts about possibility to implement this model with large number of students. It is more difficult to manage large audience, and it requires more orientation towards teacher. Senior students can be involved as casual assistants during groups' discussions.

When applying this learning for large group of students teacher must find additional time to activate students' work during practice classes.

Planning problem-based learning in large group it is necessary to include various educational activities. It might be mini-lectures, discussion of the whole group, discussion in small groups etc. On purpose to avoid routine teacher must be creative. For example, instead of planned 20 minutes discussion in groups it is purposeful to divide discussion into two periods of 10 minutes and intersperse mini-lecture or discussion of the whole group between these periods.

As teacher's role as an assistant increased and his (her) function as the main information source decreased, problem-based learning espouses the idea that students must quote many different sources to get information by themselves. Information diversity allows students considering problems from various positions, understanding the importance of discourse influencing one or another pattern of information presentation. It is discussed quite often if teacher should present the list of used sources or students should compose it themselves thus gaining more initiative and self-reliance.

Assessment is another very important feature of problem-based learning as an entire educational strategy. Feedback and educational, encouraging improvement but not only total,

stating the fact of (not) grounding assessment is necessary (Macdonald, 2010)¹⁴. During problem-based learning students are assessed by teacher, they also evaluate themselves and others. Possibility to assess oneself and classmates until the end of learning process retains students' initiative and ensures implementation of principles of learning directed towards student.

VARIATIONS OF PROBLEM-BASED LEARNING IN DIFFERENT HIGHER EDUCATION INSTITUTIONS

Problem-based learning as theoretical model in practice is applied for the context and thus assumes nature of variations. Conventional studies elements often replenish problem-based learning. It is recommended when adapting to the context for which transition from teaching to learning paradigm is typical. According to this it is advisable for teachers who start applying problem-based learning to implement the mixed variant of problem-based learning.

Studies integrating elements of both conventional and problem-based learning are typical to Lithuanian University of Health Sciences which implements problem-based learning under the utmost scale in our country. Practical trainings of problem-based learning take place once a week aside of lectures and seminars in this educational institution. According to the studies course an imaginable patient, whose disease case is considered and decision concerning treatment is made by students, is ascribed to students' group (10 people on an average).

Mixed problem-based learning model is currently being implemented in Harvard University on purpose to encourage students' initiative and self-reliance. Applying this innovative method it was decided to introduce new elements, such as seminars of small groups, leaving the elements of conventional learning like lectures. Closely integrated various activities in Harvard University helped to achieve expected results in self-education process (Walker, 2009)¹⁵.

It is not rare when problem-based learning at higher education institutions closely relates not only with conventional studies' forms and methods but also with other educational innovations. Combination of problem-based and project-based learning is often met. Some

¹⁴ Macdonald, B. (2010). *Improving Teaching and Learning Through Assessment. A Problem-based Learning Approach*. Altona: Comon Ground Publishing.

¹⁵ Walker, A. (2009). *A Problem-based Learning Meta Analysis: Differences Across Problem Types, Implementation Types, Disciplines, and Assessment Levels*. Utah University. ITLS Faculty Publication. Vol.3, No1.

scientists try to contrast these two educational innovations. However, it is fairly observed that both project-based and problem-based learning emphasizes the process of learning but not teaching. They both amplify the role of students' choice and active working. The task to create and/or implement problematic project can efficiently integrate advantages of both project-based and problem-based learning. Applying this combination students successfully study in Aalborg University for the last few decades (Barge, 2010)¹⁶. Various activity forms invoked allow students gaining deep theoretical and practical knowledge related to the field of given problem starting from problem resolution until the documentation of made decision.

Analyzing the experience of problem-based learning in Manchester and Sheffield Universities it was revealed students are involved into various volume research projects and while communicating with other students they get acquainted with definitions and the main questions of studied discipline (Levy et al., 2011)¹⁷. Such learning is particularly important in knowledge society where majority of work processes has the nature of research. Employees of library and information systems in Sheffield University render assistance for individual students, students groups that do research on their own as well as for common work of students and teachers. Electronic dictionaries, reference manuals, textbooks are prepared by common efforts.

Switching to students' competencies it is important to evaluate other aspects that might have influence on the results of problem-based learning as well, because problem-based learning is understood as the system which does not start teaching from the outset but seeks to integrate student's experience, his living world and learning into cohesive entirety. Savin-Baden (2000)¹⁸ noticed that there is still the lack of researches concerning problem-based learning where students' identity would be disclosed when speaking about integrated human picture. Not accidentally in current researches of making problem-based learning efficient, attention is paid towards students' residential environment, experience of their earlier learning and other circumstances, that might help to develop competences of problem-based learning, are assessed (Eder et al., 2011)¹⁹.

¹⁶ Barge, S. (2010). *Principles of Problem and Project Based Learning. The Aalborg PBL Model*. Aalborg University.

¹⁷ Levy, P., Little, S., McKinney, P. (2011). *The Sheffield Companion to Inquiry-based Learning. The University of Sheffield: CILASS*.

¹⁸ Savin-Baden, M. (2000). *Problem-based learning in Higher education: Untold Stories*. Buckingham: The Society for Research into Higher Education and Open University Press.

¹⁹ Eder, F., Roters, B., Schlkman, A., Valk-Draad, M., P. (2011). *Problem-based Learning*. Dortmund: HDZ. PP. 72-114.

STUDENTS' COMPETENCIES DEVELOPED BY PROBLEM-BASED LEARNING METHOD

Both theoreticians and practitioners of education are interested in competencies being developed during problem-based learning. Efficiency of problem-based learning is mostly sought to prove by comparative researches of conventional and problem-based learning.

Majority of sources analyzes transferable skills effectively developed by problem-based learning method. It is currently tried to emphasize not only transferable but also special competencies that are developed by students while solving problems relevant to studies context (Eder et.al., 2011)²⁰. Special skills are developed directly by solving problems, and transferable skills are developed indirectly by the process of problem-based learning itself. Besides, problem-based learning enriches special skills orienting towards activity in professional context and flexible application of available information under present conditions but not towards information which should be remembered and precisely repeated during examination by students.

Information is better remembered and recalled when applying problem-based learning. Students better assimilate resource materials because they learn contextually, relating new information to the possessed knowledge, i.e. they learn by deep method, but not superficially. According to scientists meaningful students' learning is happening by enacting earlier knowledge and developing it further.

Teamwork skill possessed and gained by students is very important because given tasks of problem-based learning are such that individual initiative is not enough to accomplish them. During first meeting after receiving the problem description students commonly formulate learning goals, hypothesize, all refer to possessed knowledge and suppose what knowledge they as a team do not have. Capacity to contribute teamwork development actively should be assessed in problem-based learning. Sharing information for the sake of group improvement provides that it is avoided delivery of irrelevant for group information, domination in teamwork but it is sought to hear various opinions and discuss.

Efficient teamwork provides meaningful deposit of each team member. It is emphasized in the structure of problem-based learning as educational system that students share learning topics and each team member analyzes them individually, and results are again discussed commonly in the group. Process is repeated under necessity until discussion about problem is

²⁰ Eder, F., Roters, B., Schlkman, A., Valk-Draad, M., P. (2011). *Problem-based Learning*. Dortmund: HDZ. PP. 72-114.

over and the decision is provided. Self-directed learning takes place when student plans his/her self-learning, provides measures, assesses obtained results and thinks over his progress. Thus students gain competencies of time management, application of modern information search strategies and evaluation of their reliability.

Students also improve their skills to recognize the need of knowledge and skills for solving the problem, to assess their competencies from the viewpoint of problem solving and to choose a proper information source.

Initiatively accomplishing research students have possibility to cooperate with various specialists who can help understanding and solving the problem. It is one more of problem-based learning aspects contributing to teamwork capability to develop while working not only with peer but also in the heterogeneous group (Adhan, 2011)²¹.

Work in team is related to new cognitive capabilities. It is referred to arguments of other members, self-arguments are searched and possessed and newly gained information is integrated.

Reasoning, analyzing, applying synthesis during problem-based learning helps to develop the capabilities of critical thinking. Some institutions, applying problem-based learning, provide students with the lists with contacts of various disciplines representatives that students could have efficient tutorials while solving problems. Sometimes interdisciplinary teams are composed for solving problems. In such case students see their discipline in the context of other disciplines, are able to formulate and present various arguments, realize the interdisciplinary teams in their studies and further activity is necessary while analyzing and solving complex problems.

Good atmosphere is necessary when working together (Strobel et.al 2009)²². In the beginning of problem-based learning both students and teachers meet negative prejudice respecting increased workload. However, it is observable overtime that problem-based learning increases students' interest in studied course. As students discuss problems in group they discover the unknown and start taking interest in certain topic after the discussion. It is also supposed that problem-based learning increases motivation because students determine learning results on their own and independently decide what is important for their learning.

²¹ Adhan, N., L. (2011). Would PBL affect students' generic competencies? *African Journal of Education and Technology*. Vol.1, No3, pp. 1-14.

²² Strobel, J., Barneveld, A. (2009). When is PBL more effective? A meta-synthesis of meta-analysis comparing PBL to conventional classrooms. *The Interdisciplinary Journal of problem-based Learning*. Vol.3, Iss.1, Article 4.

Assessing the competencies of problem-based learning, attention is paid not only towards creation of positive atmosphere in the group which might be too enthusiastic. Problems' analysis and solving is difficult work requiring students' endurance. Therefore it is important that disappointment or dissatisfaction would be directly told duly.

Problem-based learning which allows students meeting complex reality at close range enables them to accept challenges as stimulus for learning but not the obstacle (Weber, 2007)²³. Thus positive attitude towards complexity and uncertainty is being developed.

Aside of other advantages problem-based learning enables students to evaluate progress of themselves and their colleagues, discuss about learning goals and achievements. Hereby students develop their reflecting capabilities. (Forsythe, 2006)²⁴. One of problem-based learning aspects – assessment of oneself and peer – allows students comprehending the whole of their studies, becoming persons capable to manage efficiently the process of lifelong learning.

Finishing the analysis it is important to mention that many comparative researches of conventional studies and problem-based learning do not present obvious arguments that problem-based learning is noticeably superior in comparison to conventional studies. However, in educational theory and practice identified competencies that are developed during problem-based learning, and which replenish and enrich other variously gained competencies, and increased students' motivation to learn allow giving preference to problem-based learning. Therefore more and more practitioners decide to adapt this learning in their institution of higher education.

CONCLUSION

Problem-based learning is characterized by diversity of features eliminating shortages of conventional studies and satisfying the needs of modern higher education. Essential features of problem-based learning vary, replenish with aspects of other educational innovations. Thus meaningful, flexible combinations of problem-based learning, that prevent it from detaching from conditions of time and context, are created.

Links between problem-based learning features and competencies being developed can be found when analyzing scientific literature and referring to practical experience. When applying problem-based learning method, a reflective thinking, competence to perform

²³ Weber, A. (2007). *Problem-Based Learning*. Bern: h.e.p.-Verl.

²⁴ Forsythe, F. (2006). *Problem-based Learning: The Handbook for Economics Lecturers*. Available at: <http://www.economicnetwork.ac.uk/handbook/printable/pbl-v5.pdf>. [Accessed September 2012].

research of various volume, solve problems, design one's knowledge, assess achievements, reconcile teamwork and self-directed learning is developed. Consecutive problem-based learning helps to achieve that critical thinking would grow into well-grounded criticism motivating the necessity of interdisciplinary learning. Aside features of problem-based learning it is necessary to assess students' experience and development of various competencies. Diversity of problem-based learning features and competencies being developed raises when analyzing concrete institutional experience. Continual evaluation of results is the condition to ensure studies quality. Referring to the main principles of problem-based learning, expected results can be achieved that students would get proper education and would reasonably learn all their life.

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PROBLEMINIS MOKYMAS(IS) IR KOMPETENCIJŲ UGDYMAS

Aušra Stepanovienė*
Mykolo Romerio universitetas

Santrauka

Probleminis mokymas yra viena labiausiai pasaulyje paplitusių mokymo(si) sistemų, sulaukianti daug aukštojo mokslo institucijų teoretikų ir praktikų dėmesio. Jis turi daugybę individualių komponentų, su kuriais susiduria studentai, dirbdami mažose grupėse ir analizuodami atrinktas problemas. Šiam mokymui(si) būdinga studentų ir dėstytojo sąveika, pasižyminti sisteminga ir pažintine veikla – naujų žinių ir veiklos būdų įsisavinimu sprendžiant praktines užduotis. Pradėdamos taikyti probleminį mokymą(si) aukštosios mokyklos susiduria su įvairiais teiginiais, ne tik padedančiais šį metodą adaptuoti kontekstui, bet ir prieštaraujančiais jo būtinumu ir tinkamumu. Straipsnyje apžvelgiami esminiai probleminio mokymo(si) bruožai ir analizuojamos jų variacijos.

Pradedant taikyti probleminį mokymą(si) aukštojoje mokykloje svarbu ne tik gebėti modeliuoti mokymo procesą, bet ir numatyti šio mokymo(si) rezultatus. Mokslinės literatūros analizė bei praktinė šio metodo taikymo patirtis atskleidžia teigiamus probleminio mokymo(si) rezultatus. Straipsnyje nurodomi pagrindiniai probleminio mokymo(si) bruožai ir jo sąsajos su ugdomomis besimokančiųjų kompetencijomis. Sistemingas probleminis mokymas(sis) pagilina ir papildo tradicinių studijų būdu įgyjamas kompetencijas. Organizuojant ir analizuojant sudėtingas realaus pasaulio problemas grupėse mažėja dėstytojo įtaka, didėja studentų iniciatyva ir atsakomybė. Besimokantieji ugdo gebėjimą dirbti komandoje, kritiškai mąstyti, kokybiškai atlikti užduotis, vertinti pasiekimus. Taikant probleminį mokymą(si) studentai turi galimybę panaudoti, pritaikyti ir susieti naujai išmoktą informaciją su jau turimomis žiniomis, integruoti savarankiško ir komandinio mokymosi pranašumus mokymo(si) procese.

Būtina įvertinti ir studentų patirtį, jų kompetencijas. Studentams iš dėstytojo perimant mokymosi iniciatyvą padidėja ryšys tarp probleminio mokymo(si) bruožų ir ugdomų kompetencijų. Nuolatinis rezultatų vertinimas yra geriausia sąlyga studijų kokybei užtikrinti. Atsižvelgiant į esminius, į besimokančiuosius nukreipto mokymo(si), kaip ugdymo filosofijos, principus galima pasiekti laukiamų rezultatų, kad studentai gautų tinkamą išsilavinimą ir motyvuotai mokytųsi visą gyvenimą.

Pagrindinės sąvokos: probleminis mokymas(is), kompetencijos, taikymas.

Aušra Stepanovienė*, Mykolas Romeris universiteto Visuomenės saugumo fakulteto Humanitarinių mokslų katedros lektorė. Mokslinių tyrimų kryptys: anglų specialybės kalbos mokymo(-si) problemos, inovatyvūs kalbų mokymo(-si) metodai, teisės tekstų vertimo teorija ir praktika.

Aušra Stepanovienė, Mykolas Romeris University, Faculty of Public Security, Department of Humanities, lecturer. Research interests: problems of teaching/learning ESP, innovative language teaching methods, theory and practice of legal language translation.