

National literature review
Lithuania: Lithuanian (English)
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Introduction

This review presents description of critical thinking (CT) practices in Lithuania's higher education (HE). The review process was organized according common academic practise of secondary sources analysis on specific issue. First step, *keywords identification*: critical thinking skills / critical thinking dispositions / critical thinking attitudes/ higher education/ universities / faculties / programs / students/ interventions/strategies/practice. Second step was *selection of papers for analysis*. Papers had to be: found in scientific electronic-databases; peer reviewed; focused on HE; with clear intervention/practise description. Third step was *analysis of selected papers*. Analysis was done according agreed rubrics: study program/ field and level of HE described in articles; methodological approach; instructional methods and resources used. Fourth step was *summarizing* of analysed papers in a table in accordance with study program/field and level of HE addressed; instructional approach and resources used. We have analysed all available Lithuanian scientists' publications in Lithuanian and English languages with the above mentioned key words. We have found 29 publications corresponding to all search criteria. From those found, 12 have been eliminated as too abstract – without any practical/empirical evidence. Development of critical thinking in the rest 17 publications was associated with development of creativity, career education or entrepreneurship, pointing out importance of critical thinking abilities. However, teaching/learning practices or interventions either are not described at all, or just mentioned without any deep analysis. We also found few methodical publications, but they were excluded from our analysis because of not meeting criteria described in the step two. Finally we looked closely at 12 publications (from 17), that satisfied all above mentioned quality criteria.

Data bases searched: Web of Science: no results; Scopus: no results; Index Copernicus: 5; MLA International Bibliography: 3 ; C.E.E.O.L-2 ; "Lituanistica" – national database of peer reviewed scientific publications in humanities and social sciences: 2

Table 1. Number of articles found in the databases

| Total number of articles | Index Copernicus, EBSCO | C.E.E.O.L. | Lituanistika | MLA International Bibliography |
|---------------------------------|-------------------------|------------|--------------|--------------------------------|
| 12 | 5 | 2 | 2 | 3 |

Results of the literature review about CT development in HE of Lithuania

Critical thinking is researched by quantitative methods (6 articles) and qualitative methods (6 articles). Teaching and learning of bachelor students (*social sciences*: education; philosophy; economics; management; *agriculture*; *technical* and *engineering sciences*, *humanities*) are explored with aim to testify efficiency of certain strategies, approaches, tools.

In this respect, the most remarkable example of critical thinking development practice in HE is the article „*Developing critical thinking through cooperative learning*” (Klimovienė, Urbonienė & Barzdžiukienė, 2006). The authors present cooperative learning strategies application in teaching business English language second year economics and management bachelors.

The article presents research process and results of cooperative learning effectiveness in teaching students. Teachers who took part in the experiment had to follow practical step by step guidelines for integrating cooperative learning techniques into their instructional and evaluative methods. Step one was to use uncomplicated structures of cooperative learning and only after a successful mastering of the techniques teachers were encouraged to use more complicated cooperative learning.

The research involved three English language instructors and 90 second-year students of the faculty of Economics and Management who had business education as compulsory subject. The skills of critical thinking and the knowledge of English were evaluated on the basis of cooperative case-study tasks and written summaries (“Choosing the right person for the job”, “How to hit the market”). Researchers investigated students’ abilities: 1) to identify and state issues clearly, logically and accurately; 2) to ask pertinent questions; 3) to develop own position and back arguments; 4) to make summaries, identify relevant points of view; 5) to analyse, do synthesis and make decisions; 6) to make critiques and integrate other perspectives; 7) to use explicit language, communicate effectively (Bloom & Krathwhol, 1956; Ferrett, 1997; Old,1998).

The research revealed *the relationship between cooperative learning and critical thinking*. Students who mastered the skills of cooperative learning, mastered the skills of critical

thinking as well. It was determined that a correct strategy while developing critical thinking should include: a) *interpersonal contact*, in means putting different learners together; b) creating *mutual interdependence and common aim*. One of the important preconditions - no strong competition between team members; c) *equal status among group members*. Group leader has to have only a limited power. He/ she should be more a coordinator than a 'boss'; d) *a teacher should perform the role of a consultant* offering the students a strong support to seek imaginative, constructive, ethical solutions of problems. However, the article mostly concentrates on cooperative learning effectiveness, but not on presentation of the concrete teaching/learning strategies. CT skills and dispositions are not explicitly presented and discussed in this article.

Application of reflective observation, writing and discussion strategies, in line with critical reflection, is well described in one more article. I. Balčiūnienė (., *Analysis and evaluation of reflective methods in service learning classes*", 2006) researches role of reflective teaching/learning methods for studies' quality assurance. Research methods used - literature analysis, interview (content) analysis; reflective diary, reflective essay analysis. Subject – applied ethics. Researched – 26 4th year bachelor students of philosophy and social sciences (education profile). The students wrote diaries while visiting confessional communities. Those diaries were summarized in reflective essay and discussed at the end of semester with teacher. Writing in diaries was guided by critical reflection guidelines/questions: a) knowledge about community; b) student's attitude towards community; c) student's activities and communication with community members. The research showed that critical-analytical thinking was stimulated through comparing existing knowledge with new one, comparative, in depth information analysis, presentation of arguments, making inferences. The author concludes, that applied reflective methods support development of critical thinking – students demonstrate ability to analyse and systemize information, draw arguments based conclusions. One more article, "*The Development of Critical Thinking Skills Through Self-Evaluation in a Tertiary Esp. Course*" by Janulevičienė& Kavaliauskienė (2012) presents example of students' self-study (study of personal learning). The authors argue, that in academic settings the skills of critical thinking, closely linked with self and peer-observation and self-evaluation, are of paramount importance in every subject. A university ESP (English for Specific Purposes) course requires application of these transferable skills, too. The study presents some findings of research which reveals how students at Mykolas Romeris university (MRU) evaluate their general language abilities, self-assess performance in various ESP class activities and how reflections on one's performance lead to the development of critical

thinking skills in ESP classes. The validity of the research findings is backed by a statistical processing of self-evaluation data by means of a SPSS (Software Package for Social Sciences) versus actual performance in formal tests. Authentic student reflections presented in the weblogs samples are believed to add further highly valuable insights into tendencies for strategies for learning ESP and ways to develop critical thinking skills. The research strategy itself is not explicitly described, but students' authentic self-reflections on learning process are very interesting. They demonstrate ability to analyse, to compare, to share personal experience, and in some cases even cognitive maturity.

Empirical data analysis disclosed that students' critical thinking in the process of university studies is developed by *problem-based questions, search for reasoned answers; solving problems; promoting practical application of theoretical knowledge.*

In the rest of the articles are presented separate strategies or methods, such as: *interactive lectures &, interactive discussions (most often); case analysis & problem solving; students' projects development.*

Table 2. Summary of the literature review about CT practices in Lithuanian academic articles

| No. | Author | Year | Database | Field | Level | Methods | CT approach | Type of intervention | Teaching strategies |
|-----|--|------|---|----------------------|----------|--------------|-------------|---|--|
| 1 | Aušrienė, M | 2003 | Index Copernicus, EBSCO. | Education | Graduate | Qualitative | Infusion | Self-study | Problem solving |
| 2 | Balčiūnienė, I. | 2006 | C.E.E.O.L. | Ethics | Graduate | Qualitative | Immersion | Interview (content) analysis; reflective diary, reflective essay analysis | Metacognitive learning strategies |
| 3 | Daukila, S | 2006 | EBSCO, Business Source Complete, CAB Abstracts, Ulrich's, DOAJ, OAJI, IndexCopernicus, ERIH PLUS. | Agriculture | Graduate | Quantitative | Immersion | Self-study | E-learning Lecture discussion (argumentation) |
| 4 | Janulevičienė, V. & Kavaliauskienė G. | 2012 | EBSCO Publishing, C.E.E.O.L., PROQUEST, ULRICH'S | Education | Graduate | Quantitative | Immersion | Self-study | Peer-observation and self-evaluation |
| 5 | Klimovienė, G., Urbonienė, J., & Barzdžiukienė, R. | 2006 | EBSCO; MLA International Bibliography; C.E.E.O.L.; ULRICH'S WEB; | Education, languages | Graduate | Qualitative | Immersion | Experiment | Cooperative learning |

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|----|----------------------------------|------|--|-----------------------|-------------|--------------|---------------------|--------------------------|--|
| | | | IndexCopernicus. | | | | | | |
| 6 | Kriauciūnienė, R | 2010 | Lituanistika | Education, languages | Graduate | Qualitative | Immersion | Experiment | Problem solving E-learning |
| 7 | Maumevičienė, D. | 2010 | MLA International Bibliography; Lituanistika. | Education, languages | Graduate | Quantitative | Infusion | Self-study | Problem solving Lecture discussion (argumentation) |
| 8 | Rimienė, V. | 2006 | C.E.E.O.L; EBSCO; MLA International Bibliography | Education, psychology | Graduate | Mixed | Infusion | Self-study Experiment | Not defined |
| 9 | Rimienė, V. | 2013 | EBSCO; MLA International Bibliography | Education, psychology | Graduate | Quantitative | Immersion | Self-study | Not defined |
| 10 | Stunžienė, D. | 2006 | Lituanistika | Education | Graduate | Quantitative | General Infusion | Self-study | Lecture discussion (argumentation) |
| 11 | Tolutienė, G | 2012 | Index Copernicus, EBSCO | Adult education | Graduate | Quantitative | Mixed | Self-study | Problem solving; Lecture discussion (argumentation) |
| 12 | Vaičiūnienė, V., & Mažeikienė, V | 2014 | SocINDEX with Full Text; IndexCopernicus | Education, languages | Not defined | Qualitative | Immersion | Self-study | Problem solving E-learning |

Table 3. Quantitative results of the analysis of the CT practices in Lithuanian academic articles

| N° papers | Methods | Fields | Level | CT approach | CT intervention | CT strategies |
|-----------|--|---|-----------------------------------|--|---|---|
| N=12 | Mixed (1) Quantitative (6) Qualitative (5) | Education (2) Ethics(1) Agriculture(1) Education, languages (5) Adult education(1) Education, psychology(2) | Graduates (11) Not defined (1) | Immersion (7) Infusion(3) Mixed(1) General/infusion (1) | Self-study (8) Interview + (content) analysis + reflective diary+, reflective essay+ analysis (1) Experiment (2) Self-study + experiment (1) | Problem solving (1) Problem solving + lecture discussion/argumentation (2) Problem solving +E-learning (2) Metacognitive T/L strategies (1) E-learning +lecture discussion/argumentation (1) Peer-observation + self-evaluation (1) Cooperative learning (1) Lecture +discussion/ argumentation (1) Not defined (2) |

Table 4. Summary of CT interventions of the CT practices in Lithuanian academic articles

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|--------------------------------|---|--|--|---|--|--|---|--|
| CT /teaching strategies | Problem solving (1) | Problem solving + lecture discussion /argumentation (2) | Problem solving +E-learning (2) | Metacognitive T/L strategies (1) | E-learning +lecture discussion/ argumentation (1) | Peer-observation + self-evaluation (1) | Cooperative learning (1) | Lecture + discussion/ argumentation (1) |
| <i>Learning materials</i> | Textbook material | Different T/L materials (textbooks, articles, hand-outs, etc.) | weblogs | Different T/L materials (textbooks, articles, hand-outs, etc.) | Various e-learning materials (texts, tasks, case studies, etc.) | Different T/L materials (textbooks, articles, etc.) | Different T/L materials (textbooks, articles, etc.) | Practical work (in-service learning) & course materials (textbooks, notes, etc.) |
| <i>Results reported</i> | Exam results showed students improved CT skills | CT can be easily applied in the T/L process through learner centered activities & tasks. It helps to make academic & professional content interesting. CT is a tool to make the ideas mobile &easily adaptable to achieve the desired results in any communicative & non-communicative situations. | Authentic student reflections presented in the weblogs samples are believed to add further highly valuable insights into tendencies for strategies for learning ESP & ways to develop CT thinking skills | Positive impact on dispositions of analicity, openness, sistematicity self-trust, cognitive maturity. Less impact on truth seeking & curiosity. | Development of deeper cognitive skills reading & writing skills, analytical skills, ability to make judgements about texts, ability to create texts (printed, digital, visual, multimodal, etc.) as well as ability to apply the acquired information and skills in everyday life, | In order to accustom students to moral judgment making it is necessary to develop their CT abilities as the significant precondition of making judgments, thus providing favourable conditions for the analysis & evaluation of dilemmas & presentation of consistent arguments with the focus | The interrelationship between cooperative learning and CT | The analysis revealed that all these reflective practices complement each other in developing certain learning, intellectual, social skills & helping to integrate practice & academic work in service learning classes. |

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|------------------------------|---------------------------------------|--|--|--------------|---|---|-----------------------------------|--|
| | | | | | work and task performance in order to implement changes in one's social environment | on moral values as the criteria of evaluation | | |
| <i>Examination</i> | Exams results; feedback from students | Evaluation of students discussions, presentations, group work, self-assessment | Students reflections | Test results | Evaluation of students discussions, presentations, group work, self-assessment | Self-evaluation, observation | Observation, students reflections | Students' journals, reflective essays & interviews |
| <i>Reported difficulties</i> | Not reported. | Not reported. | Students unable to evaluate their writing & listening skills & knowledge of professional vocabulary impartially & objectively. This fact suggests the necessity of developing CT skills in learning by encouraging students to analyse their own ongoing performance | Not reported | Not reported | Not reported | Not reported | Not reported |

Results of CT interventions

Our conclusions about development of critical thinking in HE of Lithuania are following:

- CT abilities are related with students interactive and networked learning/teaching; interactive learning is directed towards disclosure of students' internal strengths;
- CT abilities are developed by students centred activities and cooperative learning;
- CT abilities are strengthened by reflection of personal learning (diaries, essay) that enables teachers to improve their own teaching;
- CT programs influence development of dispositions of fairness, analyticity, systematicity, self-confidence, and cognitive maturity;
- in order to accustom students to moral judgment making it is necessary to develop their CT abilities as the significant precondition of making judgments, thus providing favorable conditions for the analysis and evaluation of dilemmas and presentation of consistent arguments with the focus on moral values as the criteria of evaluation.

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