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## **CRITICAL THINKING FORMATION THROUGH READING AND WRITING COMPETENCIES IN FOREIGN LANGUAGE LEARNERS AT NON-LINGUISTIC UNIVERSITIES**

*The article reports on research into the problem of reasonability to seek for techniques and means of critical thinking enhancing in foreign language learners at non-linguistic universities as the demand of the 21<sup>st</sup> century. The current study investigates basic methodological innovations relevant to applying active, interactive or dialogue methods of teaching, aimed at redirecting teaching activities from informative and illustrative to organizational. Efficient practice-centered pedagogical technologies that engage and encourage a cognitive autonomous student activity, promote in-depth study and mastering training materials, enhance independent study, develop and form critical thinking are researched. An autonomous cognitive student activity in teaching and learning foreign languages at non-linguistic universities is studied as a major type of academic activity which is carried out and monitored by students due to their ongoing and final assessment on the basis of external indirect system management by the teacher. It is emphasized that the technology of enhancing and promoting critical thinking contributes to the formation of the potential specialist's readiness for further self-education and lifelong learning in order to constantly improve their skills and even, if necessary, get a new profession. It is emphasised that the intensification of independent cognitive activity in the educational process, as the realities today are such that the modern social demand focuses on preparing students for an autonomous cognitive activity in the educational process in higher education and later in professional activities. The article concerned with one of the primary problems to be solved by higher education – improving the quality of training – has the following priorities: graduates of higher education institutions must be competent not only within the curriculum of academic disciplines, but to obtain appropriate knowledge, skills application of this knowledge in practice, methods of conducting research activities, as well as to carry out an independent search for new knowledge and scientific data, to develop independently and be engaged in self-education, while practising critical thinking.*

**Key words:** *critical thinking, educational technology, autonomy, cognitive activity, foreign language.*

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## **ФОРМУВАННЯ КРИТИЧНОГО МИСЛЕННЯ НА ЗАНЯТТЯХ З ІНОЗЕМНОЇ МОВИ В СТУДЕНТІВ НЕЛІНГВІСТИЧНИХ ЗАКЛАДІВ ВИЩОЇ ОСВІТИ ЗАСОБАМИ ЧИТАННЯ ТА ПИСЬМА**

*Стаття присвячена проблемі пошуку способів розвитку критичного мислення, що відповідає рівню XXI століття. Розглянуто основні методичні інновації, пов'язані з застосуванням активних, інтерактивних або діалогових методів навчання, спрямованих на переорієнтацію діяльності викладача від інформаційної до організаційної.*

*Досліджено ефективні практико-орієнтовані педагогічні технології, які сприяють пізнавальній самостійності студентів, глибокому засвоєнню змісту, підвищенню самостійності в пізнавальній діяльності, розвитку критичного мислення. Проведено аналіз самостійної пізнавальної діяльності в процесі навчання в закладах вищої освіти як основного виду навчальної діяльності, що організовується, здійснюється й контролюється студентами по процесу й результату на основі зовнішнього опосередкованого системного управління з боку викладача. Підкреслено, що технологія формування критичного мислення сприяє формуванню готовності майбутнього фахівця до подальшої самоосвіти й безперервного створення протягом усього життя з метою постійного підвищення своєї кваліфікації й навіть, якщо виникає необхідність, отримання нової професії. Проаналізовано роль інтенсивної соціальної запит орієнтує на підготовку студента до здійснення самостійної пізнавальної діяльності як у процесі здобування освіти у виші, так і в подальшому в професійній діяльності. Доведено, що на сьогоднішній день одна з першорядних проблем, що вирішуються вищою школою, – підвищення якості підготовки – має такі пріоритети: випускники закладів вищої освіти повинні бути компетентні не лише в межах навчальних програм з академічних дисциплін, тобто отримати відповідний обсяг знань, володіти навичками застосування цих знань на практиці, методами ведення дослідницької діяльності, а також здійснювати самостійний пошук нових знань і наукових даних, самостійно розвиватися й займатися самоосвітою, водночас мати критичне мислення. Сьогодні розвиток критичного мислення студентів вважається одним із завдань викладачів іноземної мови закладів вищої освіти. На вміння критично мислити впливають різні фактори. Серед цих факторів – використання методів оцінювання, які можуть допомогти викладачам розвивати критичне мислення на заняттях з іноземної мови професійного спрямування.*

***Ключові слова:** критичне мислення, освітня технологія, автономія, пізнавальна діяльність, іноземна мова.*

**Urgency of the research.** A modern society requires alumni of non-linguistic higher educational establishments to have such a level of language proficiency in which is sufficient for understanding the main ideas of complex texts on both concrete and abstract topics, including technical discussions in his/her field of specialism that makes regular interaction with native speakers quite possible without strain for either party. Potential engineers must be able not only to read or translate foreign profession-oriented literature, but also to percept audio, to make conference reports, and to participate in seminars and webinars, to be able to have a small talk on different topics, to search for necessary information in the Internet, to make presentations, etc. The principle task of foreign language acquisition for potential engineers is to form communicative competence that means to master a foreign language as a means of cross-cultural communication, to form skills and abilities to use a language as a mechanism of a dialogue of cultures in the globalising world. In order to form communicative competence, notably communication skills which can be formed on the bases of linguistic knowledge, abilities and skills, foreign language teachers must apply improved methods of foreign languages learning and teaching.

**Uninvestigated parts of general matters.** The success of professional activity largely depends on the ability of a specialist to concentrate efforts on the performance of his/her functions. Today, a profoundly educated professional must quickly and properly master new technologies and new content of professional activity. Therefore, in the course of university training, a potential specialist needs to be prepared for activity in the conditions of concen-

tration of time and effort. In the process of vocational training, the issue of the discrepancy between the volumes of knowledge and the amount of time that is devoted to their mastering is especially relevant. Only innovative teaching methods can reduce this contradiction, allowing you to increase the amount of knowledge that university students learn, without adding time, which is allocated to their study.

Teaching focused on enhancing and promoting critical thinking skills involves not just university students actively seeking information for assimilation, but something more: correlating what they have learned through their own experience, as well as comparing what they have learned with other studies in this field of knowledge. Participants in the cognitive process have the right to question the reliability or authority of the information received, check the logic of evidence, draw conclusions, construct new examples for its application, estimate the possibilities of solving the problem, etc. The ability to independently acquire skills and use them in the course of practical activity, and not just the volume of accumulated knowledge, plays a major role today in the process of adapting alumni of a non-linguistic university to the difficult realities of modern society. For this reason, the application of technology for the development of critical thinking through reading and writing, along with the classical forms of activity at the university in the process of teaching a foreign language, is an obvious necessity.

**The research objective.** The purpose of the research is to reveal some techniques of the technology of critical thinking forming and its promotion by means of reading and writing

competencies at non-linguistic universities while learning foreign languages for specific purposes and to represent their values in practical classes.

**Scientific researchers and issue analysis.** The technology of critical thinking through reading and writing was an invention not only of the American pedagogy representatives, notably Donna Ogle, Jenny Steel, Curtis Meredith, Charles Temple, Scott Walter, but also such a prominent Ukrainian researchers as I. Bekh, L. Bozhovych. About the necessity of critical thinking development was spoken by such educators as P. Blonskyi, A. Bairamov, H. Lipkina, L. Rybak, V. Synelnykov, S. Veksler, M. Krasovytskyi, O. Bielkina, Yu. Stezhko. There are lots of different meanings of the notion ‘critical thinking’ in scientific researches, but not all of them are correlated. Critical thinking is defined by researchers of the technology as to demonstrate curiosity and to use research methods, to pose questions and to seek for answers studying different resources (Temple, 1998: 11). Critical thinking means to make a case and a viewpoint on the definite issue and to be able to defend the position by logic arguments. Critical thinking involves attention to the arguments of the opponent and their logical comprehension. The definition comprises various aspects, but it should be taken into consideration that critical thinking is not a single ability but a group of related skills.

**The statement of basic materials.** At the end of the 20<sup>th</sup> century in the USA such scientists as Jenny Steel, Curtis Meredith and Charles Temple were engaged in developing the method to form critical thinking. The technology of forming critical thinking is a holistic system aiming at building skills how to deal with information by reading or writing. Critical thinking is one of the types of human cognitive activity. It is characterized by a significant degree of perception, comprehension, and an objective approach to the information field surrounding us.

The technology is aimed at:

- developing cognitive style of a new type, namely thinking, which is characterised with openness, flexibility, awareness of internal ambiguity of own position and viewpoints, alternative decision-making;
- forming basic qualities of a personality such as critical thinking, creativity, innovation, communicativeness, mobility, independence, tolerance, responsibility for an individual choice and the results of work;
- forming analytical and critical thinking;
- improving the reading culture that includes the ability to focus on information sources, to understand correctly what is read, to classify any information obtained in regard to its significance

avoiding peripheral information, to perceive information critically and rationally, to summarize and make conclusions;

- practising individual creative information seeking.

The objective of the technology of critical thinking enhancing is to teach students how to read. In reading students must be able to comprehend, analyse information by means of own previous experience. Reading and writing are two integrated skills in education that have an impact on forming literacy, an ability to think and generate a sense. It has been proved by years of practice that it is necessary to use these two competencies as a single linguistic mechanism in class. Therefore, while forming critical thinking competence much attention is paid to the ability of students to express their thoughts in writing. In the experience of critical thinking forming students begin to apply all techniques of texts analysing independently, so, they demonstrate abilities to self-study (Vukina, 2007: 44).

To illustrate the benefits of the technology it should be analyzed some techniques of enhancing and promoting critical thinking in university students whose specialism is ‘Geodesy and land use planning’ which are implemented in Chernihiv Polytechnic National University in foreign language classrooms (Davidson, 2017: 127).

**Method “Basket of ideas and concepts”** is used to organize individual or group work at the beginning of the lesson as a brainstorming. This technique allows the students to express their opinion in regard to the target topic. The following plan of information exchange can be appropriate:

1. Each student must answer the posed question about the topic in writing independently for 1-2 minutes.
2. Then the students must exchange personal information in pairs or in a group. Discussion is controlled over and takes not more than 3 minutes.
3. Then each pair or group of students must present in public a set of facts on the posed question having got consensus and combined opinions of all members to form a list of ideas. They should avoid repetition.
4. All information obtained from the students a teacher collects in the form of theses. All information concerning the topic is appropriate. **For example, before reading the text “Documentation in Land Use” the students are proposed to discuss the questions:**  
1) *What is documentation? What benefits do people have from documentation?* 2) *What is better to use paper or digital documentation system in land use planning?*

Before reading the text “Bottom-Up and Top-Down Planning in Geodesy” the students are proposed to discuss the questions: 1) What is a strategy? Why do people use strategies? 2) Plan and strategy: is there any difference?

**Method “Cluster” or “Mind Map”.** On the whiteboard a student writes a key word or definition and puts arrows from it in different directions. These arrows link the target word or definition with other ones from which arrows diverge further and further. The purpose is to classify knowledge obtained on the topic. This technique is closely connected with the previous one named “Basket”, since the basket contains facts that need being systemized. Method “Cluster” is mostly used to induce cognitive activity, to structure training materials, to making conclusions, and to summarize everything the students have learnt before. This technique should be used for independent and group study organization in class and for remote learning.

**Method “Margin notes”.** By means of this technique a student can monitor own understanding the information read. To ease the work students are offered to use a kit of special symbols that can be put on lines while reading a text marking the definite tasks or sentences. The symbols can be following:

– in case a student understands that information from the text is well-known for him/her, it’s necessary to put (+). If information is new, a student puts (\*). In case a student disagree with the statement, it’s necessary to put (-);

– a symbol (?) is used in case a student misunderstands something in the text he is reading or wants to get additional information to clarify the text or the task.

Applying this technique in practice, a student carefully and actively reads into the task or text, monitors his/her own understanding of the information. As a rule, while reading students miss unknown words or expressions, but a symbol (?) makes them be more careful and monitor what is not clear. Using markers gives an opportunity to compare previous knowledge with new one. Applying this technique a teacher must defined beforehand a text or a paragraph which students will mark, then explain the rules of marking, and limit time for fulfilling the task.

**Method “Cinquain Making”** requires students to summarize academic materials, information that make them reflect. The form of cinquain is defined by specific rules and guidelines. Cinquain employs a 5-line pattern: 1) a noun – a topic of cinquain; 2) two adjectives that characterize a noun; 3) three verbs (Infinitives or Participles I) that reveal the topic and represent actions dealing with the topic

of cinquain; 4) a statement that expresses a student’s attitude to the topic of cinquain; 5) a key idea of the topic of cinquain (usually it is a single word but it depends).

First of all, a teacher should explain the rules for writing cinquains and give an example of several ready-made cinquains. Then a teacher defines the topic and limits time for writing cinquain. For example:

– the topic “Introduction to Geodesy”:

1. GEODESY.
2. Technical, equipped.
3. Measuring, understanding, conserving.
4. A branch of applied mathematics.
5. Fastest growing career.

– the topic “Documentation in Land Use”:

1. CARTOGRAPHY.
2. Physical, topographical.
3. Drawing, measuring, surveying.
4. A science and an art of making maps.
5. Information

**Method “Training brainstorming”.** The purpose of the technique is to develop a creative type of thinking in students. Thus, the choice of topics depends on a number of alternative decisions of the target issue. This technique is usually carried out in groups of 5–7 students. On the first stage, students apply the technique “Basket” in order to collect ideas or facts including different decisions. All ideas are written on a whiteboard or a sheet of paper. It is prohibited to make comments or criticize ideas. Time limit is 15 minutes. On the second stage, students discuss all ideas they have mentioned before. On the third stage, students are offered to choose the most promising ideas in class or do it as a home assignment.

**Method “Essay writing”.** Writing an essay is a free presentation of your thoughts on the target topic. Evaluating the implementation of this technique, it takes into account independence, the manifestation of individuality, debatability, the uniqueness of decision-making, what arguments are given. As a rule, students write essays in the classroom after they have discussed the problem. Time limit is 5 minutes. For example: *You are a land surveyor. Describe your first day at a new job. Talk about: someone you met and what they do, what you are doing in your new job.*

**Conclusions.** The technology of forming critical thinking is not intended for memorization, but primarily for a thoughtful creative process, for setting goals and finding creative solutions. Students are trained not only to work with the text, namely: to consider information from different angles, to determine the contradictions and types of structures

that are present in the text, to justify their own point of view, but also to form their own opinion, express it clearly and decisively, productively interact as a team and independently transform the acquired knowledge and skills regarding the solution of a new problem, problem and the search for innovative solutions. Applying the technology for the development of critical thinking and its components in the process of teaching a foreign language to students of engineering

specialism makes it possible to draw a conclusion about its effectiveness in the process of forming the students' cognitive abilities and developing the skill of mental activities. The acquired skills enable students to increase the effectiveness of perception of information and interest in the educational material, and in the course of training, to understand the characteristics of critical thinking and take their own education seriously.

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