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Development of Students' Critical Thinking Skills via Teaching English

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Abstract

The purpose of the research is to investigate the educational potential of the foreign language as a university subject and to verify theoretically and practically the possibility of developing critical thinking skills of students in the process of foreign language acquisition at the tertiary level of education. The student age is a sensitive period for the development of the intellectual sphere of an individual especially in general and critical thinking. The research about critical thinking suggests that this type of thinking is a category of interdisciplinary knowledge and represents a set of certain skills: reflection, goal setting, decision making, problem-solving, and other skills. Experimental teaching and practical evaluation of the methods designed to develop students' critical thinking skills by means of the foreign language showed that in the process of specially organized teaching and educational activities, students successfully master critical thinking skills if they are taught step-by-step; learning content is thoroughly selected; an appropriate system of exercises is designed; the problem- and communication-oriented teaching is provided. It is necessary to implement the communicative approach and the approach of interrelated teaching of language skills, to ensure a close connection of the content of the exercises with students' real life (to use exercises that allow analyzing students' real-life situations, events, behavior, actions), to use active methods of teaching (role play, case-method, project method).

Keywords: critical thinking, tertiary education, intellectual skills, communicative approach, interrelated teaching, language skills, educational potential, foreign language.

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Introduction

Modernization processes taking place in the system of worldwide tertiary education outline fundamentally new approaches to the realization of the educational potential of academic disciplines, and therefore, to the development of cognitive abilities and intellectual skills of students. According to the experience of world methodologists and teachers, one of such areas is the development of the critical thinking (CT) of students. The question of the development of critical thinking skills (CTS) of students is important for many humanitarian and science disciplines.

The possibilities and specifics of the development of CTS of students of different ages are thoroughly investigated in modern pedagogical science. The relevance of the study is confirmed by the fact that CT is considered to be one of the key competencies in modern education as it is highly demanded on the job market, on the one hand, and the interest of the scientific community to this problem, on the other hand. This is substantiated by a large number of scientific research in this field of pedagogical science (Khabarova and Sadova, 2020; Kavenuke, Kinyota, and Kayombo, 2020; Nguyễn and Nguyễn, 2017; El Soufi and See, 2019).

Nowadays, the issue of CTS development becomes more important in tertiary education. It requires a completely new view on the realization of the educational potential of university disciplines. It also allows looking at the subject “Foreign Language” from a different angle in terms of the feasibility of using technology for CT development while teaching a foreign language. The importance of addressing the issues of optimal use of the educational potential of a foreign language in higher education is also necessitated by the formation of global information space and a huge increase in the volume of information, including information in foreign languages. It assumes not only a sufficient level of a specialist’s communicative competence but also the ability to critically assess reliability and relevance of information, the ability to work effectively with information (receive, store, interpret, and use), recognize problems and find quick but balanced ways to solve them. Studies (Bezdeneznykh, Zaytseva, Kulikova, Prokophyeva, and Khodyreva, 2020; El Soufi and See, 2019) confirm that effective use of methodological recommendations and techniques promote the development of CTS through studying foreign language materials, develop students’ speaking and writing skills, form the ability to analyze, synthesize, decode information about other cultures, work with authentic texts, and plan own activities. Obviously, these skills and abilities cannot be developed only while learning a foreign language in a traditional way. They require intentional training within the framework of a specially organized educational process.

Purpose and objectives of the study

In the present study, we attempted to examine the educational potential of the foreign language as a university subject and to verify theoretically and practically the possibility of developing students' CTS in the process of foreign language acquisition at university, to experimentally test the methodology of the development of students' CTS in the framework of a specially developed training course in English.

Literature review

The methodological aspect of developing CT has been profoundly studied by Western scientists. Dewey (1915) studied the issue of reflective thinking and viewed it as an active, persistent and attentive consideration of any opinion or form of knowledge in the light of the foundations it rests on and the analysis of the conclusions it leads to. Glaser (1941) noted that CT calls for a constant effort to explore any belief or form of knowledge through the prism of the facts that serve as their proof, and the conclusions to which they lead. According to Ennis (1996), CT helps to make irrevocable decisions about what to do and what to believe. The analysis of studies and concepts on the problem of CT allowed us to develop a working definition relevant to this research. We define CT as a special type of a person's reflexive mental activity aimed at a conscious engagement into the process of thinking while evaluating and verifying facts, hypotheses, and opinions, analyzing and solving problem situations, making decisions, and defending one's point of view.

The analysis of research on students' education by Stepanova (1974), Zimnyaya (1989), Lomteva (2001) shows that the student age is a period of intensive development of mental cognitive processes and abilities. The intellectual development of students is the main direction of personal development at this age and is connected with education as the basic activity of the student. In psychology, the student age is a sensitive period for the development of an individual's intellectual sphere in general, and the development of critical thinking in particular.

Recent research indicates the need for the development of students' CTS. Akpur (2020) points at the relationship between CT, reflexive thinking, and creative thinking and proves their positive impact on student performance. The connection between the level of CT development and academic success was previously discovered by Fong, Kim, Y., Davis, Hoang, and Kim, Y. W. (2017). Khabarova and Asadova (2020) explored the technologies designed to develop information and cognitive independence of university students in the light of the great need for highly qualified specialists who are ready for self-development and focused on improving their professional competence. The authors think that by mastering the techniques of CT technology, the student displays the desire for productive mental activity, independent mastering of new knowledge, and the search for effective ways of working.

The need to address the educational potential of academic subjects, such as the foreign language, in terms of the development of CT is confirmed by several studies. Milrud (1992) investigated the problem of the developing potential of the foreign language as a university discipline. The scholar noted that activities involving foreign language texts (reading, listening, and writing in specially created pedagogical conditions) contribute to the development of general intellectual abilities of a person, such as analytical skills, productivity, logical intelligence, intellectual flexibility. These intellectual abilities are related to CTS. Litovchenko (2019) analyzes the features of the use of CTS in the study of the foreign language at a university, emphasizing the relationship between language and thinking and the need to include training in higher-order thinking skills in the curriculum. El Soufi and See (2019) examined various strategies for the development of CT in the process of teaching English to university students and stated their effectiveness.

Petukhova (1987) considers that the development of the intellectual activity of students by means of the foreign language is achieved through the creation of specific problem situations and the implementation of the communicative principle. The foreign language as an academic subject has great opportunities to create a variety of speech problem situations in the classroom due to its intersubjectness and polyfunctionality (Galskova, 2018).

Milrud and Maksimova (2000) point out the need to implement authentic communication-oriented teaching of foreign languages based on the use of tasks. Such problematic tasks are aimed at developing CT which the authors define as “conscious questioning of one’s or others’ stance, thoughts, and statements”. The authors suppose that CTS is an important requirement for successful work with texts, organization of role-playing and discussions in the classroom.

Grigoryeva, Zimmaya, and Merzlyakova (1985) believe that the concept of interconnected training of language skills might be one of the means of solving the general educational tasks of teaching the foreign language at university. The formation of CTS is not possible without the formation of students’ speech activity because it involves the implementation of educational activities that include the reception of information through listening and reading, processing of this information and production of own thoughts through speaking and writing. This way, interconnected training can be viewed as training aimed at the development of CTS in the process of simultaneous interrelated teaching of language skills (listening, reading, writing, and speaking).

These principles of communicative, problem-based learning, as well as interrelated teaching of language skills, formed the basis for the methodology of developing students’ CTS.

Methodology

The research was conducted in the North-Caucasus Federal University. The study involved 62 fourth-year bachelor degree students majoring in Linguistics and 24 first-year master degree students majoring in Pedagogical Education. The developed methodology was tested at three stages: 1) pre-test questionnaires; 2) experimental training; 3) post-test questionnaires. Placement tests and questionnaires used for this study were an adapted version of critical thinking self-assessment test “Measuring My Critical Thinking” (Valencia Community College), an adapted test “Pre-Test of Critical Thinking” (Starkey, 2004), and an adapted version of the questionnaire “Critical Thinking Interview Profile for College Students” (The Foundation of Critical Thinking).

There were three stages of the experimental training. At the first stage, students were introduced to the concept of CT. The purpose of this step was the formation of knowledge and goal-setting necessary for the development of CT, general ideas about CT, and intellectual skills and abilities that contribute to the development of CT. This stage was represented by the thematic sections “Introduction to Critical Thinking” and “Critical Thinking Activities”. The content of this stage was theoretical material on the problem of CT and practical exercises which were used as a means to create a cognitive basis for further educational activities of students.

The second stage of the methodology was aimed at the formation of separate groups of CTS that contribute to effective work with information, solving problem situations, making balanced and logical decisions. The selection of the content and methods of training at this stage was carried out following the need to develop separate groups of CT skills. The content of the training is based on the system of CTS, which was developed by the authors and was based on the concepts of Glaser (1941), Ennis (1962) and the system of CT skills set out in the project "Delphi Report" (Facione, 1990). We selected the most significant intellectual skills as presented in Table 1.

Table 1. System of critical thinking skills.

Critical thinking skills	Tasks
Reflection of own thinking process	<ul style="list-style-type: none"> – Evaluate the process of own thinking, reasoning, presentation of arguments; – Develop objectivity of thinking, be able to put yourself in the place of others in order to understand and accept different points of view; – Refrain from hasty judgments, purposefully question facts and information in order to formulate correct and logical conclusions; – Recognize the degree of influence of extraneous factors (emotions, social stereotypes, own beliefs and ideas) on the thinking process.
Goal-setting skills	<ul style="list-style-type: none"> – Analyze own process of setting and implementing life, educational, and professional goals;

Justification of one's position	<ul style="list-style-type: none"> – Develop strategies to achieve the goal. – Clearly state own position and be precise in the choice of language tools; – Select and build arguments in defense of your point of view. – Evaluate the reliability of information;
Information analysis	<ul style="list-style-type: none"> – Select necessary and relevant information; – Obtain necessary additional information through various ways: asking questions, comparing different sources of information.
Analysis and evaluation of arguments	<ul style="list-style-type: none"> – Analyze and evaluate quality, validity, reliability, and consistency of statements, assumptions, arguments, conclusions, arguments, evidence. – Detect the presence or absence of subjective assessments and biases in the sources of information concerning the presented information.
Solving problems	<ul style="list-style-type: none"> – Recognize the problem and look at it from different angles, compare and contrast different opinions; – Anticipate and evaluate possible solutions to the problem situation.
Decision making	<ul style="list-style-type: none"> – Consider and evaluate alternatives for a decision; – Anticipate the consequences of the decisions made; – Make reasonable decisions and be able to justify own choice.

The second stage of the experiment included the following topics: “Thinking critically About Goals”, “Problem Solving”, “Critical Thinking and Stereotypes”, “Critical Thinking in the Digital Age”, “Decision Making” and other topics. At this stage, the problems related to the expansion of the information space were discussed, the language of mass media and advertising was studied, linguistic and stylistic methods and techniques contributing to misperception of information were studied. Students studied flyers and slogans individually, in pairs and in small groups, analyzed articles of English-language mass media (high-quality and tabloids, “yellow” press, Internet sources, television), solved problems, learned how to build a constructive dialogue on controversial issues, how to prove their personal opinion with strong and reasonable arguments, how to ignore emotions and other factors that affect the perception of events and the mental process in general. The methodology of teaching was designed according to the following model:

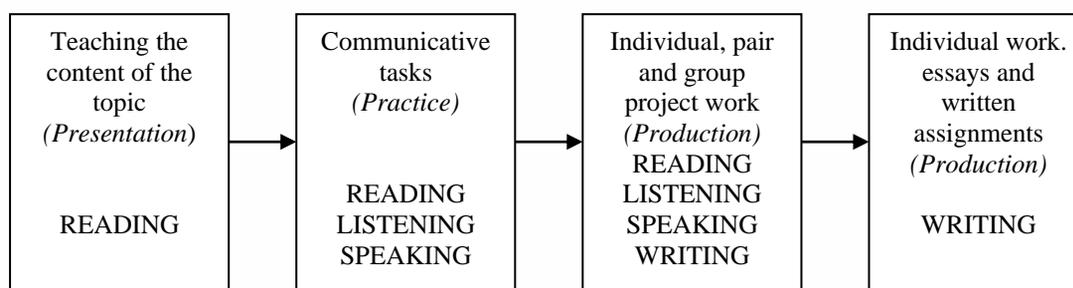


Figure 1. Model of the development of CTS within a single topic.

The model (Figure 1) shows that the process of developing CTS within a topic (series of topics) goes from the creation of a cognitive basis (acquiring knowledge about the topic) while reading texts, mind maps, charts, tables to the reflection of students' thinking process through communicative tasks, project work and writing assignments.

The goal of the third stage of the experiment was to integrate CTS and to practice applying them. The task of this stage was to develop students' abilities to apply and use the acquired knowledge and developed CTS. The main method at this stage was the case method. Students were asked to examine and reach a verdict on a real court case, which was examined by the court in 1990 in the United States, Minneapolis. The record of the process was presented as an adapted version in the textbook "Thinking Critically" by the American researcher Chaffee (2009). We have developed a system of exercises for analyzing each of the steps of an imaginary trial. The educational situation simulated the progress of the trial, in which students acted as real participants in the trial – jurors. Students studied the case, the testimonies of witnesses from the defense and prosecution, analyzed the court debates and arrived at the verdict. The experiment illustrated the functioning of students' mental activity and how their opinions changed as they completed specific tasks. First, students unanimously render a verdict "guilty", but at the end of the testimony and argumentation analysis, students tended to partially acquit the defendant. The system of exercises that we suggest involves active independent research work of students and aims at the development of CTS. This method of teaching helps to construct the integrity of the process of CT and contributes to the practical application of skills at all steps of the situation analysis. Besides, the involvement of the students in this case, the desire to "understand" it, helped to increase motivation and to realize that the right decision can be made only as a result of accomplishment of a number of actions on research, analysis, evaluation and gathering information. At the same time, the process of studying cases involves solving a number of problems that students face throughout their academic work, which provides the implementation of one of the principles of developmental teaching – the problem-oriented principle of education. This facilitated engagement of students into team activities where students did not only have to process information but to experience the process of solving problems, which is considered a deeper process of thinking.

Results

Observations carried out during the experimental teaching showed that the indicators of the level of CTS, the ability to apply them in daily life and learning activities have improved considerably in the experimental group.

The post-test of students' CTS revealed that students had a much higher evaluation indicator of CTS (89% of students were satisfied with own skills and noted a qualitative change in the CT process).

The post-test of CT included:

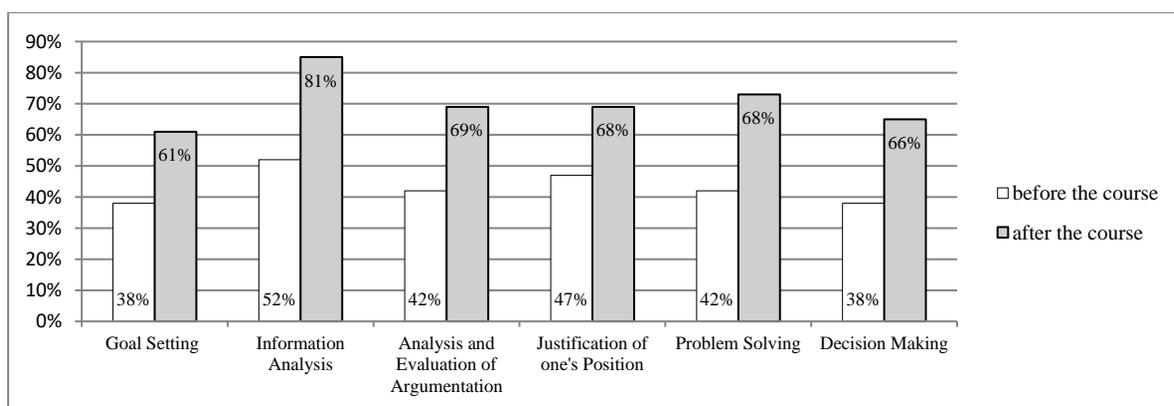
- 1) Questionnaire directed at self-evaluation of the thinking process, evaluation of the curriculum in general and of the teacher's work. The post-test consisted of two questionnaires. The first questionnaire included the following questions: a) Have you noticed any changes in your own thinking process during the course? Provide examples. b) How did your understanding of critical thinking as a particular type of intellectual activity change as the course progressed? c) What skills did you acquire during this curriculum? d) Which of the topics did you especially remember and like? Why? The second questionnaire was an adapted variant of the questionnaire "Student Perception of Critical Thinking in Instruction" developed at the Centre of critical thinking development in the USA headed by R. Paul. The questions of the questionnaire were aimed at students' evaluation of the quality of the learning process, of the teacher's work on the development of CTS and the formation of knowledge about CT.
- 2) An adapted version of the test "Post-Test of Critical Thinking" (Starkey, 2004). We applied the entrance examination of CT skills from the same series, which provided a test of the same groups of CTS at the initial and final steps of the course. In addition, in the middle of the course, we asked students whether they liked the activities, experienced any difficulties in learning, what recommendations for improving the learning process they could offer.

Interpretation and generalization of the results of the surveys showed that the students began to wonder about how they think, how they read texts, how they accommodate information from mass media, pay attention to the language and techniques of advertising, and other details. This indicates the development of their reflection which is the most important component of CT, the realization of their proper thinking process. According to the results of the intermediary questionnaire, students noted that "the course of critical thinking is a very interesting subject, really forcing you to think about how to think correctly, how to make the right choice and make the right decision...".

The results of the final questionnaire showed that the students highly appreciated the practical orientation of the course, noting the possibility of using the skills and strategies of critical thinking in their daily life and learning activities. Some students shared their impressions about being able to achieve the goals that they set during the study of the topic "Thinking Critically About Goals". Most of the participants noted the high practical value and interactivity of tasks and activities. The final questionnaire showed that the students were most interested in working with the case while studying the topic "Decision Making".

“Post-Test of Critical Thinking” showed that the increase of the development of CTS level in the experimental group was 26%. The greatest effectiveness of the method was noted for the ability to make balanced and logical decisions (growth rate was 28%), work with information (29%) and solve problem situations (26%). The lowest growth rate was for the ability to justify own position (21%). The effectiveness of the proposed methodology was reflected in the quantitative indicators obtained during the comparison of the input and final results of critical thinking skills tests.

Table 2. Comparative results of the pre- and post-tests of students' CTS.



The efficiency of the developed methodology was supported by successfully completed written tasks, active and effective work with exercises, answers to the questions of the final questionnaires and the test, which showed that the usage of the author's methodology was approved by the students (tests and questionnaires are presented in the structure of the dissertation). Students noted that they became aware of the way they think, obtain and process information, read texts. It is the indication of their reflection, which is the most important component of critical thinking, a conscious attitude to their own mental activity. Students highly appreciated the practical orientation of the course, pointing out the possibility of using the skills and strategies of CT in their daily life and educational activities. Most of the students noted the high communicative value and interactivity of the exercises, the opportunity to express their point of view, to discuss current topics, which also indicates the development of students' communicative competence.

Discussion

As experimental teaching has shown, the developing potential of a second language as an academic subject in the university can be successfully used in order to form students' CTS.

Educational possibilities for CT development are provided by a high level of language knowledge of the students of the Foreign Languages Faculty, which in its turn provides an approach of new quality when the second language serves as a means for personal mental activity reflection. Such specific characteristics of this academic subject as intersubjectness and polyfunctionality promote an effective usage of the developing potential of a second language in the context of critical thinking development. These characteristics also provide the possibility to use text materials from different academic fields in the classroom. That creates a variety of speech and problem situations, including those aimed at achieving developmental learning goals. Development of students' CTS in a second language classe is possible if a special teaching methodology is developed. This methodology is based on the conceptual categories of CT and the construction of the educational process based on the communicative approach, the principles of problem-oriented teaching and the approach of interrelated teaching of language skills with the help of active teaching methods.

The principle of interconnected teaching of language skills makes it possible to create a cognitive basis for learning through receptive language skills, a variety of work forms in a classroom, development of separate CTS groups (analysing information through reading and listening, justifying personal position through speaking and writing and others), the interaction of evaluative and practical learning objectives through the development of students' communicative competence.

While planning and organizing teaching, attention should be paid to the content of teaching. It is necessary to develop CT on certain text material. Thus, reading and listening tasks serve both for the development of critical thinking knowledge and for the development of a range of intellectual skills associated with active information processing. In addition, the development of CTS at all stages of training includes doing practical exercises (case and study analysis, application of critical thinking strategies to the proposed tasks, and other tasks), in which texts for reading and listening are used as teaching materials.

Experimental teaching has shown that the process of students' CTS development will be successfully implemented under certain conditions. The methodology for the development of CTS should be based on careful selection of the content of teaching, theoretical and applied nature of training should be provided, as well as the connection of teaching content and exercises with real-life and students' interests. It is also advisable to use teaching methods, peculiar for communicative approach in general, and techniques specific to the methods of CT development in particular.

The system of problem-based communicative tasks of a heuristic nature serves as a means of "immersion" into the process of developing a conscious attitude to CT by students.

That can be reached with the help of active reading tasks and the following types of classroom activities that stimulate thinking and speaking: role-playing and simulation games, heuristic conversations, discussions, case analysis, project work, creating mind-maps, writing essays and short written assignments (one-minute paper), communicative listening, analysis of problem situations.

It is possible to achieve methodological tasks and ensure an interesting and active learning process when students are encouraged to use a foreign language to exchange thoughts and arguments, when classes are organized as educational activities aimed at setting and solving problem communicative tasks, when students' motivation is maintained, pair work and group work is used, cooperation between teachers and students is established, problem situations are significant for students.

Conclusion

The potential of the university subject "Foreign Language" can be realized in the course of the purposeful development of CTS within the framework of a specially organized course, which contributes to a positive impact on the intellectual, emotional and volitional spheres of students' personalities. Students of linguistic departments have a high level of English, thus making it possible to optimally use polyfunctionality and the intersubject nature of a second language in teaching. It allows us to regard the foreign language not only as a goal of learning and a means of communication but also as a means of knowledge acquisition and development of intellectual skills, including CTS. The main conditions for the effectiveness of CTS development while teaching a foreign language are the introduction of a specially designed course, implementation of communicative problem-solving tasks, integrated teaching of reading, listening, writing and speaking language skills. Purposeful teaching can influence the process of CTS development, which opens up fundamentally new methodological and pedagogical opportunities in the professional training at the tertiary level of education.

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