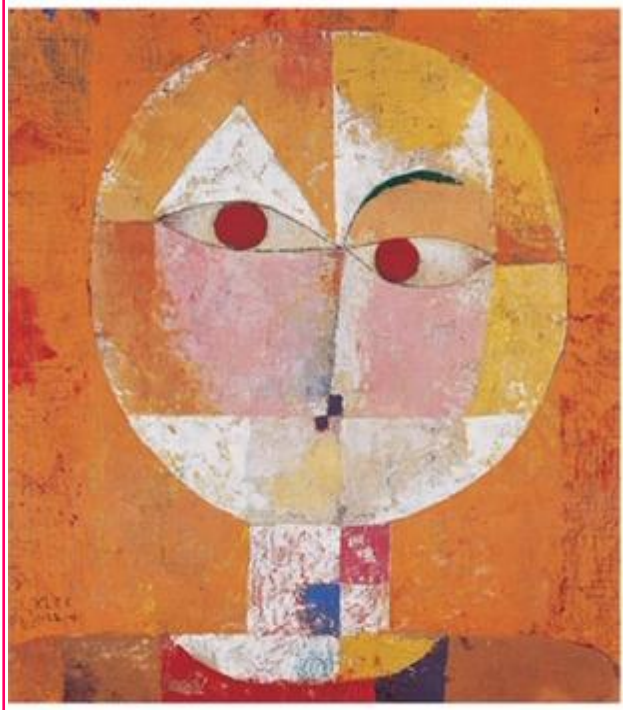
opción

Revista de Antropología, Ciencias de la Comunicación y de la Información, Filosofía, Lingüística y Semiótica, Problemas del Desarrollo, la Ciencia y la Tecnología

Año 35, 2019, Especial N° 23

Revista de Ciencias Humanas y Sociales
ISSN 1012-1587/ ISSNe: 2477-9385
Depósito Legal pp 198402ZU45



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Opción, Año 35, Especial No.23 (2019): 890-903
ISSN 1012-1587/ISSNe: 2477-9385

The system of training future teacher for the formation of pupils' thinking

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Abstract

The aim of the present study was the provision and development of a theoretical basis for a system of training future teachers to form pupils' critical thinking via comparative quantitative research methods. The questionnaire results showed a low level of students' critical thinking formation, their responses lacked the main substantive-formal basis, the very essence of critical thinking. In conclusion, systematic representations about the continuity of stages and levels of forming students' critical thinking and, correspondingly, the role and functions of higher education institution teachers allowed considering the systemic nature of developing future teacher's critical thinking experience.

Keywords: Personality, Training, Education, Institution, System.

Recibido: 18-02-2019 •Aceptado: 20-06-2019

El sistema de entrenamiento de futuros docentes para la formación del pensamiento de los alumnos

Resumen

El objetivo del presente estudio fue proporcionar y desarrollar una base teórica para un sistema de capacitación de futuros maestros para formar el pensamiento crítico de los alumnos a través de métodos de investigación cuantitativa comparativa. Los resultados del cuestionario mostraron un bajo nivel de formación del pensamiento crítico de los estudiantes, sus respuestas carecían de la base sustantiva formal principal, la esencia misma del pensamiento crítico. En conclusión, las representaciones sistemáticas sobre la continuidad de las etapas y los niveles de formación del pensamiento crítico de los estudiantes y, en consecuencia, el papel y las funciones de los docentes de las instituciones de educación superior permitieron considerar la naturaleza sistémica del desarrollo de la experiencia de pensamiento crítico de los futuros docentes.

Palabras clave: Personalidad, Formación, Educación, Institución, Sistema.

1. INTRODUCTION

The current development stage of higher education presumes a qualitative change in the approaches to the definition of its content. This is connected with the formation of a new concept of higher education, which is based on the idea of developing a student's personality. This means a principal change in the pedagogical approaches to the teaching process, in which knowledge can be complete only when the personality development mechanisms are included in the knowledge mastering process. At present, a person with

critical thinking, who is able to question established opinions and judgments, conduct a dialogue, determine the problem essence and alternative ways to its solution, distinguish fact from assumption and personal opinion, is competitive and in demand in the labor market (SEMENOVA, 2009: MARTÍNEZ-ALCALÁ ET AL, 2018).

Hence, training future teachers to form the younger generation's critical thinking in the higher education institution training system is positioned as one of the leading tasks of the higher vocational education system. The higher education system is designed to develop learners' critical thinking, direct them to self-education and to master creative ways of solving life problems. Nowadays, pedagogical science has actualized the problem of raising the level of future teacher's skills in gaining knowledge, participating in joint decision-making, developing logic, argumentation, and proof. It is admitted that a learner can obtain complete knowledge subject to the development of critical thinking (ZAGASHEV, 2003).

The critical thinking formation in the period of the information space expansion is of paramount importance. Critical thinking in teaching activities is comprehended as a set of qualities and skills determining a high level of learner and teacher's research culture, as well as evaluative and reflexive thinking, for which knowledge is not the final, but the starting point, reasoned and logical thinking, which is based on personal experience and proven facts (BUSTROM, 2000). In connection with the complicated tasks that society sets for education, in the pedagogical process of the higher education

institution, it is necessary to shift the emphasis from information to meaning-based learning. In its turn, this requires a search for more effective ways for the formation of critical thinking.

In modern conditions, when young people are expected to transform the society, it is necessary to arm them with the skills to adequately interpret the phenomena of the surrounding world, to select the best ways to command in concrete life situations. Accordingly, the problem of training future teachers to form pupils' critical thinking as full members of the community is actual and well-timed. Therefore, the study's purpose is to identify and substantiate a set of pedagogical conditions, forms, methods and means that effectively contribute to training future teachers for the formation of pupils' critical thinking in the educational process of a modern school (BRYUSHINKIN, 2003).

The methodological basis of the study consists of philosophical, psychological and pedagogical concepts revealing the essence of the concepts of thinking, critical thinking, formation, readiness, system; the provisions on universal communication, mutual conditionality of processes and phenomena; on the unity of theory and practice; the study on the driving forces of personal development, ideas about the role of activity in the personality development determining the study strategy; general methodological provisions on the application of a system-holistic, competency-based, personal-activity approaches and modeling. To solve the set study tasks and justify initial assumptions, the following research methods were used:

- Theoretical: analysis of philosophical, psychological, pedagogical and methodical literature on the problem studied; the study and synthesis of teachers' pedagogical experience, modeling;

- Empirical: observation, experiment, method of expert assessments, interview, questionnaire, testing, mathematical methods for analyzing results (EFOROVA, 2010).

2. METHODOLOGY

A modern society, i.e. modern Kazakhstani education, requires a free, creative person with critical thinking. The concept of critical thinking (critical thinking, from Greek: κριτική σκέψη) 1. the art of disassembling, judging; 2. decisive outcome is widely accepted in modern science, especially in philosophy, psychology, and pedagogy (ILYASOV, 1995).

In the English-language literature, a large number of definitions of critical thinking can be found. Some authors define it with informal logic, while others with creative thinking emphasizing characteristic features. At the same time, it can be stated that almost all definitions have something in common. We attempt to illustrate some of them. Moore and Parker comprehend critical thinking as a thoroughly considered, balanced decision with respect to any judgment as to whether we should accept, reject or postpone it and the confidence

degree with which we do it, while HALPERN (2003) suggests the following definition of critical thinking: The application of such cognitive skills and strategies that increase the probability of obtaining the desired outcome. It differs in its prudence, consistency, and purposefulness. In accordance with another definition, it is directed thinking.

As noted in the special literature, critical thinking is very close to a logical and a system thinking but is the exact reverse of creative thinking. One of the most well-known concepts of critical thinking belongs to the AMERICAN EDUCATOR ENNIS (1996), who was one of the first to develop a system of dispositions and readiness for critical thinking, or, in other words, internal motivations influencing on the thinking quality (EVDOKIMOV, 2002: OGUNDILE ET al, 2019).

The AMERICAN PSYCHOLOGIST HALPERN (2000), who developed a popular program of critical thinking training in the USA, also highlights the relevance of developing dispositions towards critical thinking. An essential component of critical thinking is the development of a disposition to think critically and readiness for it. Those who really know how to think critically know why they need it and are ready to make all the efforts required for systematic work, verified actions, information gathering and manifestations of certain persistence when the solution is not clear or requires several steps. The development of critical thinking is no less relevant than the development of thinking skills, - the author states.

Special attention in the system of the described dispositions belongs to the reflexive component of critical thinking. Reflection as a necessary condition and an integral part of critical thinking were reflected in the definition of R. Paul, director of the Center for Critical Thinking and Moral Critics in the United States: Critical thinking is thinking about thinking when you think about improving your thinking... In this case, two points have decisive importance: critical thinking entails self-improvement, and this improvement comes with the skills of applying standards to correctly assess the thinking process. The Western psychological and pedagogical tradition has a number of individual studies designated to the study of critical thinking dispositions, methods of their development and diagnosis.

The second component of the critical thinking content is actually intellectual (thinking) abilities and skills (thinking skills) that make up its essence. The ideas of the American researcher Glaser are put on the basis of modern concepts describing the intellectual skills of critical thinking. He was first to describe a set of certain skills related specifically to critical thinking: the ability to recognize a problem and find ways to its solution, collect and organize the necessary information, recognize unconfirmed assumptions and assessments; accuracy and selectivity in the application and perception of language means; the ability to interpret facts and information, evaluate with evidence, detect the presence or lack of logical connections between judgments, make valid conclusions and generalizations and question them, rebuild one's own belief system and form correct judgments about the phenomena of everyday life (ANITA ET AL., 2019).

In correspondence with the system developed by us for forming future teacher's critical thinking, we conducted a questionnaire among students. The analysis of the initial state of the future teacher's critical thinking formation on the three selected components served as the basis for determining the possible levels of the students' studied quality formation. Using the effective component of the developed model, the possible levels of students' critical thinking formation (elementary, medium, sufficient and high levels) were determined. The analysis results of the state of its formation in future teachers are shown in Table 1.

Table 1: Levels of Future Teachers' Critical Thinking Formation

Groups	Sample volume	Уровни			
		Elementary	Medium	Sufficient	high
Experimental group (EG)	n_1=118	34,6	39,5	17,3	8,6
Control group (CG)	n_2=120	34,8	39,1	17,4	8,7

As can be seen from Table 1, at the ascertaining stage of the pedagogical experiment, 34.6% of students showed a low level of critical thinking formation, and in control groups, the students' percentage with this level of quality studied was about the same (34.8%). As for the students with an average level of critical thinking, they made up 39.5% formation in experimental groups, while in the control groups this indicator was equal to 39.1%. The insignificant difference was observed in the percentage of students who showed a sufficient level of critical thinking formation, both in experimental and

control groups (17.3% and 17.4%, respectively). Meanwhile, there were very few students who showed a high level of critical thinking formation in the experimental samples (in the experimental groups - 8.6%, and in the control groups - 8.7%).

3. RESULT

The questionnaire results showed that the majority of future teachers understand the significance and necessity of forming pupils' critical thinking (89% of respondents). We were guided by the axiomatic proposition that the teacher first should himself have formed critical thinking, in order then to form it in his/her pupils. Therefore, to our question Do we think that you have critical thinking? only 39% of students were not quite sure of its formation, while the rest gave positive responses. The next step in the analysis was the question How do you understand the essence of critical thinking?

In their responses to this question, the students indicated the control, analysis and interpretation of thinking - (22.4%); thorough and in-depth study of information (8.7%); the ability to reflect and analyze, make decisions and understand them (3.1%); personality thinking characteristic of each person (3.1%); conscious and continuous process and search (7.5%); to think about something not only with direct meaning, but also in a figurative sense, transmit thoughts to others, to express one's emotions (3.1%); as a critique of the information

received, the ability to distinguish between its right or wrong side - (5%); the ability to give reasonable estimates and apply the obtained results in different situations, problems - (20%); the ability to take a position on a specific issue, a critical examination of the properties, level, thinking of others - (10%); versatile thinking, the availability of skills to generate different ideas, statements that do not coincide with the opinion of anyone - (10%), 7.5% of respondents refused to response to this question.

In the course of the survey, we found that future teachers have developed the skills and abilities of the methods of forming critical thinking, in particular in the field of application of a number of methods and teaching techniques. Thus, to the question what are the methods of forming critical thinking? 60% of respondents noted the brainstorming method, 42% - method of discussion group, 43% - method of 6 hats, 50% - I know, I knew, I want to know, 16% - cinquain, 11% - Bloom technology, 5% - cluster method and 4% - insert.

The questionnaire results showed a low level of students' critical thinking formation, their responses lacked the main substantive-formal basis, the very essence of critical thinking. The obtained data suggest that the lack of special training of students in the educational process of learning at the higher education institution affects their levels to this aspect of pedagogical activity.

4. CONCLUSION

The scientific and practical search for the optimal model of forming students' critical thinking in the educational process of higher education institution allowed us to present it in the totality of all the components of the system. Based on the scientific literature analysis and taking into consideration the specifics of the educational activities of the higher education institution, we determined the following levels of critical thinking manifestation: elementary, admissible, optimal, creative. Systematic representations about the continuity of stages and levels of forming students' critical thinking and, correspondingly, the role and functions of higher education institution teachers allowed considering the systemic nature of developing future teacher's critical thinking experience.

The experimental work was aimed at studying the real state of students' critical thinking formation, as well as determining conditions contributing to the effectiveness of training future teachers.

The tasks of higher education institution teachers at this stage, implementing the accompanying function, are to assess and correct the levels of students' critical thinking formation. The realization of these tasks and functions is manifested in the following:

- To support the initiatives of future teachers in the process of forming critical thinking, pedagogical assistance, and creative cognitive independence;

- To encourage students to rationalize the time allocated for independent work on forming critical thinking and planning such work;

- To create conditions for implementing continuity in the nature of the formation and development of critical thinking, in which each student could constantly increase the actual level of developing and manifesting the critical thinking experience, develop their skills and personal qualities, actualize their interests and abilities;

- To promote the manifestation of students' sense of purpose as the ability to subordinate close goals to distant ones, to work in an organized and collected manner;

- To help future specialists to reflexively reflect on the critical thinking experience and captivate with the prospect of self-improvement, the ability to learn for successful self-realization in the profession and community.

Thus, on the basis of studying the scientific literature and practical experience of pedagogical activity of higher education institution teachers, we developed a model of forming students' critical thinking, the structural components. They are: the purpose, the stages of forming students' critical thinking: initial, motivational, basic and final, and also identified levels of forming students' critical thinking: elementary, medium, sufficient and high; defined tasks that higher education institution teachers should solve at each stage (diagnosis of

formation of students' critical thinking; creation of conditions for forming students' critical thinking; creation of conditions for further development of students' critical thinking; analysis and correction of levels of formation of students' critical thinking) and the function of teachers in its formation (diagnostic, formative, developing, accompanying); forms and methods (essay, case studies, cinquain, analysis of situations, training, modeling, role-playing, project-based activities of students), techniques and conditions for the formation of students' critical thinking.

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Revista de Ciencias Humanas y Sociales
Año 35, Especial No. 23 (2019)

Esta revista fue editada en formato digital por el personal de la Oficina de Publicaciones Científicas de la Facultad Experimental de Ciencias, Universidad del Zulia.
Maracaibo - Venezuela

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