

Development of Students' Critical Thinking by Active and Interactive Training Methods

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Abstract – The structural content-related changes of the Higher Vocational Education occurred in the context of modernization of the Russian education. In particular, in Federal State Educational Standard, Higher Education, in governing documents, ideas, instructions, it implies the development of personal professional direction in students. It occurs in their ability to organize the lenient path of their activity, in their ability to adapt in ever-changing conditions, in the development of their critical thinking. This article deals with the different approaches and versions about critical thinking and its constituents. Some ways of students' critical thinking are offered in this article.

Keywords – critical thinking, educational technology, active and interactive methods, students.

1. Introduction

According to the Federal State Educational Standard of Higher Vocational Education, one of the main targets is the training of a qualified specialist of

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compatible degree and course, competitive at the market, competent, managing with his profession, oriented in the allied fields of activities, possessing new critical thinking and high mobility etc.

Our carried out analysis of the psychopedagogical literature demonstrated that the advanced critical thinking is one of the essential parts of the students' professional competency.

The foreign and native researchers [1],[4],[6],[9] pay much attention to the approach of the critical thinking from the side of escalating the students' cognitive activity, independence etc.

Hughes S.B., the researcher, presented the critical thinking as "the process, including the skills: to analyze, to conclude, to interpret" [2],[10]. This most commonly defines the concept of critical thinking, indicates the thinking processes with the help of which the critically thinking person operates.

It may be said, that critical thinking is a starting point for the development of the creative thinking. Indeed, both critical thinking and creative thinking develop in synthesis, interdependently.

The creative thinking is directed to the formation of new products. And the critical thinking in its turn subjects to the control of the already created product of the mental activity.

McEvoy P.M. distinguishes the following qualities of the critical thinking: consistency, continuity, organization" [3].

The selection of these very qualities, in Launer J. opinion, fits the requests of practice, considering that "... the development of the qualities of critical thinking is one of the main purposes of the education" [4].

In spite of different renderings, the conception of critical thinking, given by the Russian and foreign authors, simmers down to the following: to do critical thinking is to think consciously [6].

Thus, the main factor of successful development of critical thinking is the properly organized educational process, during which the student learns to distinguish the main things, to analyze, to choose

the more creative way to problem solving, including his own method.

2. Methods

The methods for determination of the level of critical thinking development can be classified into three groups: a) the complex of means, admissions and procedures for appreciation of intellectual competencies of the mind criticalness in reference to the wide rate of problems, situations, values and adjustment for criticism; b) particular methods and procedures for appreciation of the capabilities and skills for thinking critically in definite situations, in concrete subject areas; c) appreciation of the separate aspects of critical thinking, expressed in the form of concrete skills like to observe and comprehend the problems, to compare own and others' arguments while problem solving.

Tools of the research work:

- 1) the technique "Formation of complex analogies";
- 2) the test "Can I think critically...?".

The carried out diagnostics included the personal aspect. The purpose of the personal aspect became the definition of the level of critical development in students.

The sample group

68 students of the department of Pedagogy and Methods of Primary Education of the Technical Institute of North-Eastern Federal University took part in the research.

Research results

The students' capability to distinguishing the complex, abstract and logical relations was revealed according to the technique "Formation of complex analogies".

42% of testees possess the average level of critical thinking, 38% of testees possess the low level of critical thinking, and 20% of students possess the high level of critical thinking.

In accordance to the test "Can I think critically...?" it was revealed that 48% of students can give definitions and make differentiation, can compare the similar situations.

The results of the diagnostics prove the necessity of the development of critical thinking in the students during the educative process.

At defining the level of critical thinking development in students, we found on the levels of critical thinking developed by B.Bloom [7]:

- 1) reproduction;
- 2) comprehension;
- 3) use of concepts, rules, procedures in new situations;
- 4) analysis;
- 5) synthesis;
- 6) evaluation of the logical

composing of material, the importance of activity products. etc.

3. Results and discussion

The critical thinking possesses not only the qualities, but the capabilities. Thus, D. Halpern [9,12], brooding over the intellectual capabilities of critical thinking stops his attention at some of them:

- 1) analysis (conclusions);
- 2) hypothesizing, statement of hypothesis, development of the hypothesis;
- 3) establishment and creature, search of analogies, figures of speech;
- 4) activation of the before acquired knowledge;
- 5) activation of cause-and-effect relations;
- 6) analysis of significance;
- 7) comparison-commensuration-contradistinction;
- 8) appliance under real life conditions;
- 9) counterarguments;
- 10) mark and its authenticity (validity);
- 11) ideas generalization;
- 12) examination of different perspectives" [5].

In terms of analysis of the obtained results in the course of diagnostics and also of the above presented criteria, the main purpose of our research is the development of psycho-pedagogical education at students along with the development of cognitive activity and development of critical thinking in the process of training.

One of the goals is the usage of interactive forms and methods of training in the educative process which are oriented principally to the development of students' capability to think extraordinary, the formation of the professional competences of the future specialists; the performance of feed-back; stimulation of the motivation and interest in subjects of the learning process in the area of the studied subjects; the development of the following skills: analysis, critical thinking, students' communication; the development of the communicative skills of students and their interaction in a group; the formation of the value-oriented unity in the group etc.

A certain percentage of lectures and practice classes in Higher Educational Institution (HEI) should be carried out in interactive forms or with the usage of active and interactive methods. Generally as it is noted in FSES HVE of educational program track 050400.62 – "Psycho-pedagogical education" these methods should compose at least 25% of in-class learning in the educational process.

The term "interactive methods" can be interpreted as the methods of interaction between the participants. Education carried out with the help of these methods can be considered as interactive, that is built on interaction.

In psychology interaction means "the ability to interact or to be in the mode of conversation, a dialogue with somebody (a person) or something (for example, a computer)" [7]. Consequently, interactive

training is particularly a dialogue education in the course of which there is interaction not only between the lecturer and the students, but between the students towards each other too.

The peculiarity of that sort of interaction can be defined as following: presence of the subjects of education in one logic expanse; the collective exposure into the problem field of the current task, that is the inclusion into the one whole creative expanse; coherence in the choice of means and methods of problem solving realization; “the collective inclusion into the close emotional state, experience of the conformable feelings, concomitant to acceptance and implementation of task solving” [8]. Under this approach, the lecturer executes the function of the consultant, but not of the mentor. The students act as the subjects of activity, who actively take part in the cognitive process, following their individual patterns.

Thus, practically all the students occur included into the cognitive process, they have the opportunity to understand and to reflex the things they know and think; they develop the skill to listen to the differing perspectives and the ability to cooperate.

We often use different active and interactive methods at the lectures and practice classes. The use of these methods is oriented to the development of the critical thinking and students’ motivation: heuristic conversation, brainstorming (attack), simulation exercise, project-method, discussion, playing out of the situations, quiz (control), trainings (sensitivity, administrative), video-trainings, imitation games, the collective decision of creative tasks, case-study, modeling, the discussion of video recordings on the topic, the “Quadro” - method [9], moderator seminars, clusters, composition of cinquains, web-quest and others.

Under the conditions of the use of new educational technologies and teaching methods, when the student is delegated the role of the subject of education, it becomes actual to develop the real-life experience in information technology usage, that is web-quest, cinquains, while organizing the cognitive self-sufficiency and developing the students’ critical thinking.

Our aim in using web-quests in the students’ trainings is the development of critical thinking, the skills of analysis, synthesis, determination of the own position, expansion of the worldview; appraisal of the information at the efficient use of the study time for getting the necessary information on a definite question, topic, problem and its subsequent development.

In our work we use the following types of web-quests: 1) procreational: provision the material from different sources without its individual elaboration;

2) procreational-and-productive: a slide deck, an article, a report, public speaking, virtual field trip, persuasion and others; 3) cognitive: searching, arrangement and analysis of the information on certain topic; 4) cognitive-creative: project development on the ground of the specified criteria according to the present items; searching a response for a question; 5) creative: realization of the intended script in various genres; substantiation of the own point of view on a certain problem.

For the first time, the term “web-quest” was proposed by Bernie Dodge, the professor of Educational Technologies, University of San-Diego (the USA) in 1995 [11,12].

The students composed web-quests on the problem of a type of junior schoolchildren and teenagers’ deviant behavior. The purpose of web-quest creation became the research of origin and development of the selected type (form) of deviant behavior, that is:

1) social and legal aspect (searching the information about psychological, social, material aspects of the occurrence of the selected deviation type in the Russian Federation and its sequences to the society, the analysis of the information about the state’s actions to solve the problem of the selected deviation type);

2) psycho-pedagogical aspect (causes of occurrence; “profile” of the child with this form of deviation; main features of this form of deviation; working peculiarities with the parents of such a child; basic behavior strategies of the teacher with a child; to compose “a crib” for adults or recommendations (working instructions) with such a child.

We also use such a method as the composition of a cinquain with the purpose of students’ careful understanding of the topic, development of the creative skills, intellectual operations and students’ individual thinking qualities.

Various sources consider cinquain as a poem without a rhyme, consisting of five lines, in which the learnt topic is generalized.

On lectures and practical classes in the disciplines of psycho-pedagogical cycle the students often compose cinquains both individually and in groups with the aim to reinforce the material, to learn and remember new terms. During the cinquain composing the students develop intellectual, creative, figured abilities and others.

Thus, the proposed methods allow the students to synthesize the acquired information, activate the word-stock and cognitive self-dependence; develop mental activity, intellectual abilities etc. The above listed developed qualities provide in future the students’ activity in their permanent knowledge acquirement and its use in practice.

4. Summary

In fact, the listed methods and forms allow realizing subject-subjective approach in the educational expanse while organizing the cognitive process itself. And by that, these methods promote the development of the critical thinking and active-cognitive position of the students. It matches the actual educative demands of the modern educational process.

That way, the main principles at using interactive methods and forms in the students' cognitive process of the subjects of psycho-pedagogical cycle are the principles of dialogue, cooperation, natural conformity.

5. Conclusions

The usage of methods and approaches in students' critical thinking developing on lectures and practical classes promotes the development of the following students' skills and abilities:

- 1) the works with increasing and constantly updated information flow in different intellectual fields;
- 2) the usage of different ways of information integration;
- 3) question formulation, aidless hypothesis formulation and problem solving;
- 4) formulation of the personal opinion on the basis of understanding of conflicting experiences, ideas and beliefs;
- 5) arguing their own points of view and taking into consideration points of view of others;
- 6) the ability to engage in self-education independently (academic mobility);
- 7) to take part in cooperative decision-making;
- 8) the ability to collaborate and work in a group and others.

In addition, the mechanism of critical thinking includes the intellectual operations, determining the reasoning and argumentation: aim setting, problem recognition, hypothesizing, arguments presentation, its foundation, sequences predicting, acceptance or rejection of the alternative points of view. It includes the ability to use basic intellectual skills (knowledge and understanding) for synthesis, analysis and appreciation of the complex and controversial situations and problems. It can include the skills of problem recognition, situation clearing, argument analysis, in-depth study of the question, the development of the criteria for decision assessment and reliability of data sources, avoidance of the generalization.

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