RESEARCH NOTES

Critical Thinking Technology in the Training of Law Professionals
Tecnología de pensamiento crítico en la formación de profesionales del derecho

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Summary

According to the Federal State Educational Standards of Secondary Vocational Education (FSES SVE), graduates should master general and professional competencies according to the specialty. Students should acquire a certain set of knowledge and skills and gain practical experience in accordance with the Federal State Educational Standard through the study of professional modules. The professional modules are subdivided into interdisciplinary courses. In practice, the challenges in the educational process of secondary vocational education are in the development of general competencies. General competencies include the ability to apply acquired knowledge, skills and practical experience in solving general problems in a wide field of activity. Professional competency is the ability to apply the knowledge, skills and experience gained in solving professional problems in particular activities. The competency-based approach corresponds to the demands of society and employers for specialists capable to apply knowledge in practice, to independently set tasks and solve them in specific situations. Based on the foregoing, the technology for the development of critical thinking is able to satisfy the needs of teachers and students in the conditions of a competency-based approach. The development of thinking skills and abilities of students in the educational process is necessary not only during vocational training or in professional activity, but also in everyday life. This is especially important in the unstable economic and political situation in the Russian Federation and the world at the present time, when it is necessary to quickly, sometimes even radically reorganize their career under the prevailing circumstances. A specific feature of the educational process of secondary vocational education is not only a competency-based approach to learning, but also a modular approach implemented through professional modules. Professional modules and interdisciplinary courses included in them are defined by the FSES SPE, however, in some cases, the variability of the content of the module is allowed, i.e. the educational institution independently decides which interdisciplinary courses to include in the module.

Keywords: Critical thinking; Educational technology; Level of development; Professional module.

Resumen

De acuerdo con los Estándares Educativos del Estado Federal de Educación Secundaria Vocacional (FSES SVE), los graduados deben dominar las competencias generales y profesionales de acuerdo con la especialidad. Los estudiantes deben adquirir un cierto conjunto de conocimientos y habilidades y adquirir experiencia práctica de acuerdo con el Estándar Educativo del Estado Federal a través del estudio de módulos profesionales. Los módulos profesionales se subdividen en cursos interdisciplinarios. En la práctica, los desafíos en el proceso educativo de la educación secundaria vocacional están en el desarrollo de competencias generales. Las competencias generales incluyen la capacidad de aplicar los conocimientos adquiridos, las habilidades y la experiencia práctica en la resolución de problemas generales en un amplio campo de actividad. La competencia profesional es la capacidad de aplicar los conocimientos, las habilidades y la experiencia adquirida en la resolución de problemas profesionales en determinadas actividades. El enfoque por competencias responde a las demandas de la sociedad y los empleadores de especialistas capaces de aplicar los conocimientos en la práctica, para establecer tareas de forma independiente y resolverlas en situaciones específicas. Con base en lo anterior, la tecnología para el desarrollo del pensamiento crítico es capaz de satisfacer las necesidades de docentes y estudiantes en las condiciones de un enfoque por competencias. El desarrollo de las habilidades y habilidades de pensamiento de los estudiantes en el proceso educativo es necesario no solo durante la formación profesional o en la actividad profesional, sino también en la vida cotidiana. Esto es especialmente importante en la inestable situación económica y política en la Federación de Rusia y en el mundo actual, cuando es necesario reorganizar rápidamente, a veces incluso radicalmente, su carrera en las circunstancias imperantes. Una característica específica del proceso educativo de la educación secundaria profesional no es solo un enfoque del aprendizaje basado en competencias, sino

también un enfoque modular implementado a través de módulos profesionales. Los módulos profesionales y los cursos interdisciplinarios incluidos en ellos son definidos por la FSES SPE, sin embargo, en algunos casos, se permite la variabilidad del contenido del módulo, es decir, la institución educativa decide de forma independiente qué cursos interdisciplinarios incluir en el módulo.

Introduction

Currently, due to the unstable socio-economic situation, the requirements of employers for applicants and employees are increasing. The system of secondary vocational education has to adapt to these requirements. The educational process becomes more practice-oriented. At the same time, a significant attention is paid to the development of the student's personality, capable of creative problem-solving. In the process of training, graduates should acquire a certain set of knowledge, skills and practical experience, general and professional competencies (Volkova & Panchenko, 2018). Professional competencies are formed in the learning process through acquiring knowledge and skills, general competencies are directly related to the student's personal qualities, especially the development of critical thinking (Dolzhich & Dmitrichenkova, 2018; Bírová et al., 2018).

Based on the peculiarities of the educational process in secondary vocational education organizations and the professional orientation of training, we recommend the technology of developing critical thinking through reading and writing, the case method and situational professional tasks. These technologies are based on the following pedagogical conditions (Sokolova, 2007):

– actualization of students' cognitive activity;

– assessment of the state and dynamics of students' critical thinking;

– coordination of the content of the professional module with the ways of developing critical thinking;

– creation of an educational and research environment that guides the student towards critical perception of information, hypothesis, dialogue, discussion, reflection.

The development of critical thinking is relevant due to the socio-economic crisis. Employers have high demands on job seekers. Particularly marketable is the ability to make effective decisions in standard and non-standard situations. In the process of studying the concept of critical thinking, a large number of approaches to its definition were considered. Having analyzed all the approaches, we defined the critical thinking as the ability of students to synthesize and analyze the information using various scientific approaches and personal understanding in order to formulate their own reasoned conclusions and decision-making in both standard and non-standard situations, questions and challenges (Stolbnikova, 2006; Blinova et al., 2018).

In order to develop critical thinking, educators developed various technologies and methods. The main technologies used in the educational process of secondary vocational education include the technology for the development of critical thinking through reading and

writing, case method and the solution of professional situational tasks. Media objects can also be used to develop critical thinking in students (Chelysheva, 2013a).

The specificity of the educational process in secondary vocational education institutions is as follows (Pryazhnikov et al., 2018):

– a modular competence-based approach to teaching, which implies a professional orientation of education, and development of students' critical thinking when solving problematic professional situations and cases;

– a combination of general and vocational training in the educational process of secondary vocational education, due to which critical thinking can be developed by the method of cases and the technology of developing critical thinking through reading and writing.

Literature Review

The authors of the Reading and Writing for Critical Thinking (RWCT) technology for the development of critical thinking through reading and writing were Ch. Temple, J. Steele and K. Meredith (1997). The RWCT was first introduced at International Reading Association of the Northern Iowa University and Hobart and William Smith Colleges. The essence of the technology lies in the application of methods used in different disciplinary areas. The RWCT consists of 3 stages: challenge, comprehension and reflection (Temple et al., 1997).

At the first stage of the challenge, the topic of the lesson is determined. The teacher should guide the students with the help of questions, finding cause-and-effect relationships, if the topic of this lesson is a continuation of the previous ones. In the process of actualization, it is necessary to find out what the students already know about this issue, what they want to know or what should be learned and why it is necessary to know (Vasilyeva et al., 2017). The most appropriate at this stage will be the use of mind-mapping or compilation of an associative series in order to clearly demonstrate the relationship of the keyword of the lesson with other concepts or phenomena. The main task of the teacher at this stage is to stimulate mental activity associated with memories related to the topic being studied. In the process of exchanging information the teacher should control the atmosphere and avoid conflict situations in the team. Particular importance should be given to the importance and value of each student's opinion on the issue under consideration. In no case a teacher should criticize the student's answer if it is incorrect or inaccurate (Sokolova, 2003).

In some cases, for example, a situation may arise when students do not have enough knowledge and experience to comprehend the information received, form judgments and inferences. The teacher can ask the students to make assumptions about the object of study. This is a brainstorming, which as a result activates the attention of all students (Sokolova, 2018).

At the stage of challenge the teacher's activity can be based on both individual and group work. Individual work provides an opportunity for each student to update the knowledge and experience. Group work allows students to learn other points of view without the risk of making a mistake. Sometimes the exchange of views can lead to the development of new unexpected and productive ideas. In addition, the exchange of information fosters a variety of interesting questions. In the process of searching for answers to these questions, students will study new material with interest. There are cases when students are shy and afraid to express their opinion to the teacher or the team. To solve this problem, it is advisable to form small groups. In such conditions, it will be more comfortable for students to express their point of view (Herbek & Beiter, 2003).

Thus, upon completion of the challenge stage, students should have a powerful incentive to further work in the next stage.

At the second stage of comprehension, there is a search for answers to the questions posed at the beginning of the lesson. Most of students work independently, in pairs or groups. In case of any questions in the process of work, they turn to the teacher for help. At this stage, new information is obtained and linked to existing knowledge (Vasbieva et al., 2018).

One of the conditions for the successful development of critical thinking in the educational process at the stage of comprehension is the students' tracking of their understanding of the issue. At this stage, the organization of work can be different: a story-telling, a lecture, individual, pair or group reading or watching a video. However, as a result, each student will individually accept and analyze the information received. In this case, special attention should be paid to the quality of the material provided (Chelysheva, 2013b).

The final stage is reflection, in the process of which it becomes clear at what level the student has mastered a new topic. To this end, the teacher needs to ask different types of questions. Thus, for example, closed questions contribute to the expression of only one opinion, while open questions to the expression of several opinions. Students' answers should be as complete as possible. A variety of techniques can also be used at this stage, for example, a group discussion, writing a mini-essay on a topic, mind-mapping, etc. At the stage of reflection the students generalize the studied material, form own opinion in relation to the information received and find the gaps that must be closed on their own (Herbek & Beiter, 2003; Halpern, 2000).

Research Methodology

The experiment was carried out at the Law College of the International Law Institute (Moscow, Russia), involving 50 students majoring in Law and Social Security Organization. The control and experimental groups consisted of 25 people each. Due to the fact that the development of critical thinking is a long-term process, the experimental work was carried out during the entire course of study.

In order to identify the level of critical thinking among students at the initial stage of the experiment, a questionnaire was conducted according to the method of determining the reflexivity level by Russian psychologists A.V. Karpov and V.V. Ponomareva and the method of determining the reflexivity of thinking by O.S. Anisimov (Technology for the development of critical thinking in the university: prospects for school education in the XXI century, 2001).

The analysis of questionnaire survey in the control and experimental groups showed approximately the same level of reflexivity in general questions (Table 1).

Table 1. Results of the survey in the control and experimental groups

Group	Average score	Sten score
Control group	127	5
Experimental group	130	5

Thus, both groups are within the same sten score (sten being an abbreviation for Standard Ten), since the difference in points is 3. In general, this deviation is not significant, since both groups are within the boundaries of the average level of reflexivity. The analysis of

the structure of the reflexivity level in the control and experimental groups is presented in Table 2.

Table 2. Analysis of the reflexivity level in the control and experimental groups in a quantitative ratio, the number of students

Sten score Group	less than 4	from 4 to 7	from 7 and up
Control group	1	17	7
Experimental group	1	19	5

For illustrative purposes, the analysis of the reflexivity level should be presented as a percentage (Figure 1).
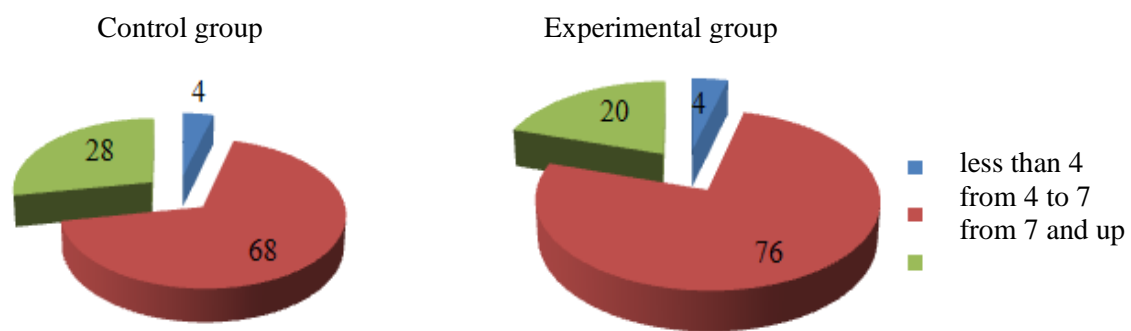

Figure 1. Analysis of the reflexivity level in the control and experimental groups as a percentage, %

Thus, based on the presented data, we can conclude that most of the students have an average level of reflexivity. In the control group, the number of students with an average level of reflexivity was 17 (68%), and in the experimental group 19 students (76%). 7 students in the control group and 5 students in the experimental group had a high level of reflexivity, which is 28% and 20%, respectively. Only one person had a low level of reflexivity in each group.

In the process of analyzing the data obtained by O.S. Anisimov's method, the results were estimated depending on the significance of the answer option according to the following criteria (Sharonova et al., 2018):

– the level of reflexivity;

– the level of self-criticism;

– the level of collectivity.

The summarized data of the processed student questionnaires are presented in Table 3.

Table 3. Generalized results of the questionnaire survey by the method of O.S. Anisimov in the control and experimental groups

Indicators	Reflexivity level		Self-criticism level		Critical thinking level	
	Average score	%	Average score	%	Total score	%
Control group	10	56	2	50	12	55
Experimental group	11	61	3	75	14	64

The table shows that the level of reflexivity and the level of self-criticism of both groups are approximately the same. However, the overall level of critical thinking of students does not exceed 70%. Despite this, the level of critical thinking is not critical and is above average, which is associated with the characteristics of students of this specialty. Logistics, both as a science and as a type of professional activity, is rather complicated due to the fact that it has an economic focus. The admission of applicants took place in the format of a certificate competition. For this specialty, applicants passed the competition with the average score of the certificate above 4.0 according to the 5-point grading system adopted in the Russian Federation.

Result Analysis

The educational process in secondary vocational education institutions is carried out mainly with the use of lectures and seminars, which are not suited to the purposeful development of critical thinking, ability to reason, analyze a problem, argue own position, etc. In this regard, it is necessary to create a complex of pedagogical conditions that increase the effectiveness of the critical thinking development.

The pedagogical conditions, taking into account the peculiarities of the educational process of secondary vocational education, included the conditions created by the teacher and ensured the most effective development of critical thinking. These conditions correspond to the functions and stages of the technology for the development of critical thinking and are as follows (Gorev et al., 2018):

-activation of students' mental activity;
-bringing the technology of developing critical thinking in line with the studied professional module;
-creation of educational research environment that guides the students towards critical perception of information, hypothesis, dialogue, discussion, reflection;
-the content of the professional module as the basis for the mastering logical and meaningful forms of discussion, dialogue, reflection.

Separately, we should consider the use of media text in the educational process in the form of video materials on the subject. In the process of the formative stage, thematic news clippings and full-length documentaries describing the activities of the logistician were used. After the viewing, the students carried out their analysis, generalization and reflection. The choice of technology for the development of critical thinking depended on the topic of the lecture or seminar. Classes were built taking into account three stages of the technology for critical thinking development: challenge, comprehension of information, reflection. In seminars on all interdisciplinary courses, problematic professional tasks and case studies were used.

Each interdisciplinary course of the professional module contained a certain number of topics and subtopics. Interdisciplinary courses were studied sequentially one after another, not in parallel. This fact allows us to track the effectiveness of the technologies for the development

of critical thinking. At the end of each topic, the students were given individual tasks, in the process of completing which the results of the teacher's observations were recorded.

The analysis of the final questionnaires in the control and experimental groups showed approximately the same level of reflective thinking in general questions (Table 4).

Table 4. Results of the final questionnaire survey according to the method of determining the level of reflexivity by A.V. Karpov and V.V. Ponomareva in the control and experimental groups

Group	Average score	Sten score
Control group	127	5
Experimental group	148	8

Thus, the average score on the questionnaire survey in the experimental group is higher than in the control group by 21 points and 3 sten scores.

To analyze changes in the level of reflexivity of thinking according to the method of A.V. Karpov and V.V. Ponomareva in both groups after the experimental work we compared the average scores based on the results of the questionnaire (Figure 2).
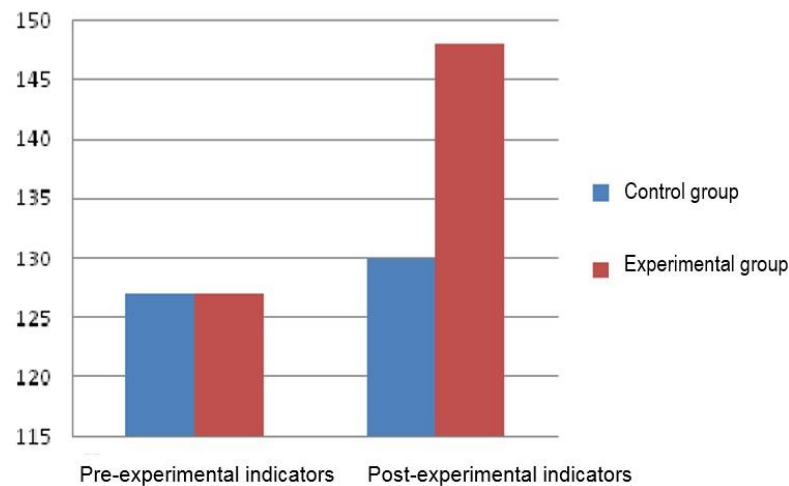

Figure 2. Comparative analysis of changes in the average score of the survey results, grade point average

The results of the survey showed that the control group remained within the boundaries of the average level of reflexivity, while the level of the experimental group increased by 30% and falls within the boundaries of the high level of reflexivity.

The analysis of the reflexivity level of students in the control and experimental groups is presented in Table 5.

Table 5. Analysis of the final diagnostics of the reflexivity level in the control and experimental groups in quantitative ratio, the number of students

Sten score Group	less than 4	from 4 to 7	from 7 and up
Control group	1	17	7
Experimental group	0	3	22

In the control group there were 17 students with an average level of reflexivity (68%), and in the experimental group 3 students (12%). At the same time, 7 students in the control group and 22 students in the experimental group had a high level of reflexivity, which is 28% and 88%, correspondingly. Only one student had a low level of reflexivity in the control group; there were no students with a low level in the experimental group.

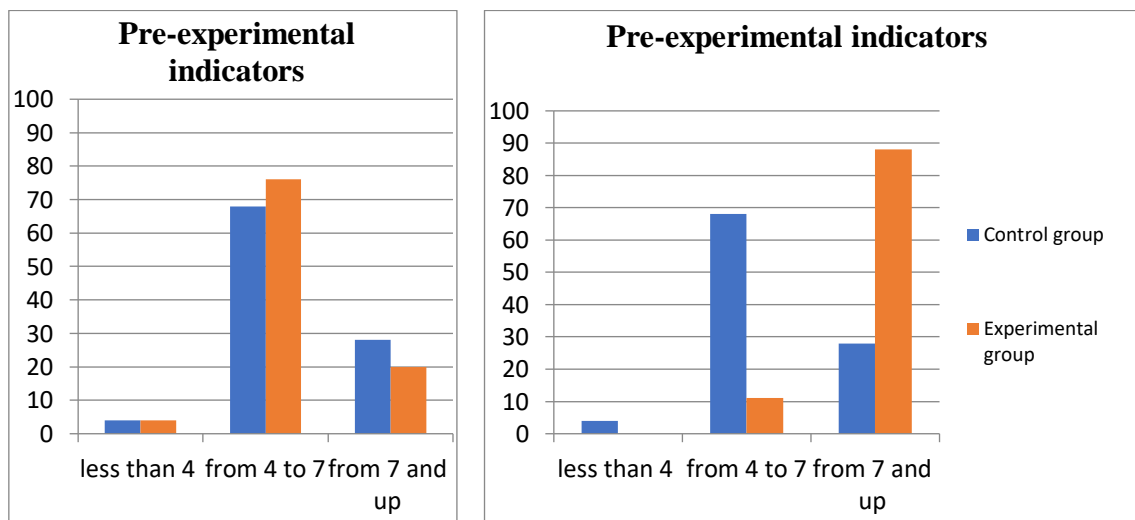For clarity, an analysis of the reflexivity level as a percentage is presented as a diagram (Figure 3).

Figure 3. Analysis of the initial and final diagnostics of the reflexivity level in the control and experimental groups, %

The level of reflexivity in the control group before and after the experimental work did not change. At the same time, due to the use of technologies for the development of critical thinking, in the experimental group the number of students with an average level of reflexivity decreased by 64%, and the number of students with a high level of reflexivity increased by 68%. Answers of students after the experimental work to the questionnaire, compiled according to the method of O.S. Anisimov, are summarized in Table 6.

Table 6 shows that the level of reflexivity in the experimental group is 22% higher than in the control group. The level of self-criticism of both groups is the same. The general level of critical thinking of students in the experimental group is 18% higher than in the control group.

Table 6. Generalized results of the final questionnaire according to the method of O.S. Anisimova in the control and experimental groups

Indicators	Reflexivity level		Self-criticism level		Critical thinking level	
	Average score	%	Average score	%	Total score	%
Control group	11	61	3	75	14	64
Experimental group	15	83	3	75	18	82

The use of technologies for the development of critical thinking, taking into account the peculiarities of the educational process of secondary vocational education, in the experimental group increased the level of reflexivity of students by 22%, and the level of critical thinking by 18% compared to the initial level. A comparative analysis of the levels of reflexivity, self-criticism and critical thinking before and after the experimental work is presented in Figure 4.
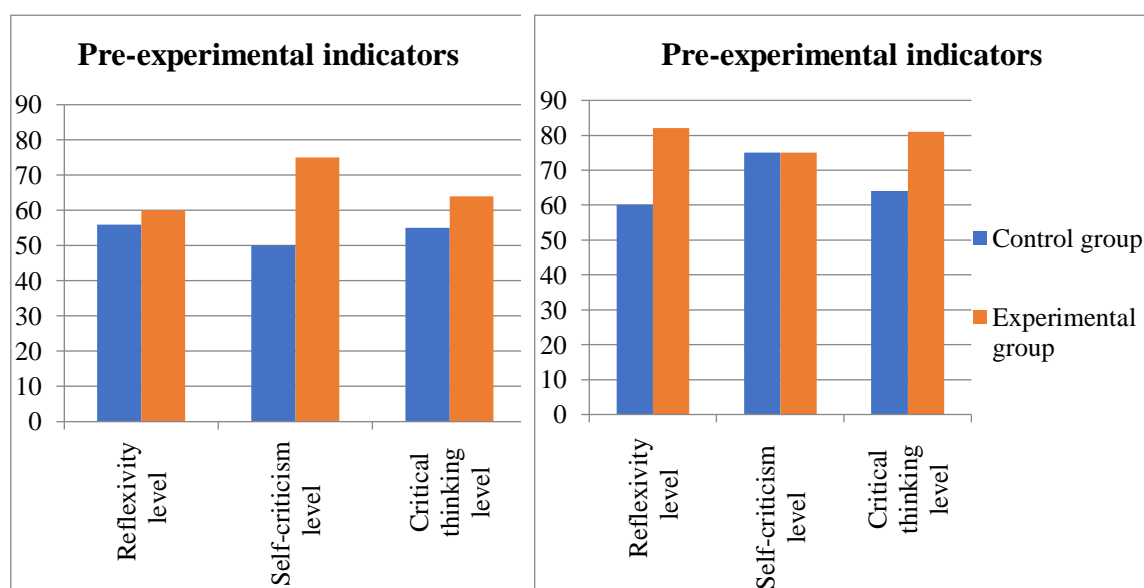

Figure 4. Comparative analysis of the pre-experimental and post-experimental indicators of reflexivity, self-criticism and critical thinking level, %

Conclusion

The results of the experimental work made it possible to establish a statistically significant influence of a complex of pedagogical conditions on the growth of the number of students with high and medium levels of critical thinking.

The stages of the Reading and Writing for Critical Thinking (RWCT) technology should smoothly transit into each other. They are mandatory for learning new information in each lesson in order for the assimilation of new material to be completed with its comprehension, formulation of conclusions and decision-making.

For the successful development of critical thinking, the following pedagogical conditions are necessary:

– a sufficient amount of time for each stage of the technology;

– encouraging the activity of students in the classroom;

– careful attention to different opinions and ideas of students;

– creating the atmosphere of mutual understanding in the classroom.

Methods and technologies of developing critical thinking depend on the specifics of the discipline being studied and the goals that the teacher pursues. It is possible to use various technologies, as well as their combinations or modifications. There is no doubt that each teacher should use time-tested and effective educational technologies to achieve high learning outcomes.

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