

## Pedagogical System of Future Teachers' Professional Thinking Culture Formation

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### ABSTRACT

Research objective is to theoretically justify and to develop pedagogical system of development of future teachers' professional thinking culture. In the research there are used a set of theoretical methods: systematic analysis of the philosophical, psychological and pedagogical literature on the researched topic; compilation and classification of pedagogical publications; analysis of educational-methodical documentation; projection of systems and processes. As a result developed pedagogical system of development of future teachers' professional thinking culture is the interaction of such components as purposeful, informative, activity, control-evaluative, effective. The culture of teacher's professional thinking is a complex system formation and purposeful creation of the culture of professional thinking can only be the result of specially organized pedagogical process on the organization of mental activity, adequate to these features. At the same time we have developed pedagogical system that promotes the pedagogical system of development of future teachers' professional thinking culture.

### KEYWORDS

Teacher's professional, thinking culture, pedagogical system, stages of formation, professional education

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## Introduction

Development of creative, mental and physical capacities of personality, formation of moral strong bases and healthy lifestyle, creation of conditions for enrichment of intelligence and identity development; training of competitive specialists in labor market are defined as priority tasks by the Law "About Education" of the Republic of Kazakhstan (Law on Education of the Republic of Kazakhstan, 2007). The solution of the specified tasks is directed on training of specialists who are capable to understand deeply the problems facing them and to solve them effectively in professional activity, but it is impossible without improvement of professional training quality of future teachers in higher educational institutions (Perkins, 2002).

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In "The Conception of the higher pedagogical education of the Republic of Kazakhstan" a strategic reference point of personality formation of pedagogical education reforming is the idea to educate future teacher with innovative, creative type of thinking which is characterized by creation of objectively new product and emergence of new growths during the activity of the subject (Kovalchuk, 2014). The creative orientation of pedagogical activity demands from future teacher to seize the general culture of intellectual activity (thinking, memory, perception, imagination, attention), culture of behavior, communication, including pedagogical communication (Sadykov, Hmel & Zhampeisova, 2000).

In this regard, development of future teachers' professional thinking culture applicability. It is caused by, that at the present stage school working efficiency depends not only on teacher's theoretical knowledge, but systemacity of his thinking, ability to solve different professional problems individually and creatively. Student's formation is impossible without conceptual framework competence, acquisition of analytical skills, development of abilities to predict and work out pedagogical process in accordance with tasks of the teacher.

All of these makes to the need to find innovative approaches to the formation of the students' culture of professional thinking, determining its nature, characteristics, structure, function. The existence of specific features of cognitive sphere in the representatives of different professions has been proved by scientists, however, there should be noted a lack of pedagogical researches on the culture of professional thinking of future elementary school teachers.

The contradiction between society's need for highly competent teachers with high culture of professional thinking and underdevelopment of the theoretical and methodological terms of the pedagogical system of its formation in the process of training future teachers is obvious.

Scientific novelty of the research is theoretical substantiation and development of the pedagogical system of development of future teachers' professional thinking culture.

The practical significance of the research is as follows: to verify the efficiency of the developed pedagogical system of development of future teachers' professional thinking culture in experimental work.

## Literature Review

Many sciences are connected with cogitative activity study as specific form of human life - philosophy, cultural science, psychology, pedagogics and others.

In aspect of our research, of special interest is D. Perkins (2002) work about cultural development studying of students' thinking. The ways of communications between ability to reflect, analyze and study material and also possibilities of the curriculum disciplines which help to develop students' thinking are analyzed in research. It isn't enough to form all-educational skills only to teach students to reflect, it is necessary to develop students' culture of thinking which will acquaint them with brainwork.

The creation of the culture of thinking is a continual effort of self-consciousness in the education of students. Perhaps, more frightening is that when our teachers ask us as more aware of the dual nature of each act, relate each question, answer, feedback, and task is not only as the main point, but our attitude to learning, thinking and minds of others. Casual reaction to incomprehensive



answer and silly task leads to what we expect from the students and what they might expect from ourselves. It should require the students to fight for their ideas. If we as teachers can teach our students, we are acting correctly; our approach eventually may even convince (Perkins, 2002).

Styles of thinking, their role in educational process of higher school are also investigated in Zh. Li-fang's (2004) works. This research is shown that the different styles of thinking arrange to certain methods of teaching students. Age, gender and academic discipline of students are taken into account in the frames of research; the participants are not strictly selected. Considering preferred teaching methods for students based on their own thinking styles. Certain styles of thinking require of certain teaching methods. This means that teachers can teach in accordance with students' style or use complementary approaches. The results of previous research have shown that the thinking styles of the first type is largely associated with positive qualities such as a deep approach to learning, higher self-esteem and higher levels of cognitive complexity. In addition, the research of thinking styles in teaching and its approaches found that teachers who used the first type, their teaching methods tend to focus on the conceptual changes in students, while teachers who use the second type, methods of teaching, as a rule, orient and emphasize the reproduction of information. Various researches based on the theory of mental self-consistently suggest that the first type is superior to other types. People with different styles of thinking have different views on the typical representation of successful teaching. The results of the research indicate that teachers need to diversify their teaching methods for students with different styles of teaching that will benefit their education. Teachers should not be too concerned about the conformity of their teaching methods to each style of teaching among their students. Instead, teachers can adapt the styles to the majority of first type students by using different teaching methods. The significant contribution of this research is the study of particularities of successful teachers. Previously, there is a lot of research is carried out, which aimed at studying the particularities of successful teachers. However, no one of researchers has considered the question of what kind of thinking styles will make a sense in students' representation of successful teachers. In this research, there is found that at least some of the styles of thinking are important in students' perceptions about successful teachers.

The question of development of future teachers' professional thinking culture was considered in L. Kovalchuk (2014) research. The author considers that students' teaching for future pedagogical activity assumes acquisition of professional skills and assimilation of pedagogical culture values. An important component of pedagogical culture of young man is the professional culture of thinking. Working out cultural and educational space is one of the most important pedagogical conditions of development of future teachers' professional thinking culture at classical university. The researcher opened the methodological principles of modeling of cultural and educational space of future teachers.

The development of cogitative activity in the process of future teachers' professional training is devoted the researches of such authors as S. Imig (2012).

It should be noted that in pedagogics and psychology there were such scholars which investigate specifics of thinking orientation depending on its contents as: methodological (Toomela, 2007), pedagogical (Morgan, 2012), critical (Sherlock & Vesely, 2005), technical (Salamatina, 2005), subject and specific (Rasumova, 2008), social (Ilusisova & Kambarkisi, 2005), etc.

Throughout the educational activities there are doing experiments of different methods of teaching of critical thinking, as well as pedagogical methods. Effective methods of critical thinking skills formation aimed at the development of students as thinkers. The usage of such methods can increase students' ability to reflect and synthesize the information, to take a position based on reliable, well-designed evidence and clearly report their position to others in a convincing form (Sherlock & Vesely, 2005).

Diversified thinking is a unique human quality. There are 13 different style of thinking in pedagogical literature based on features, forms, levels, areas and predilections. On the other hand, emotional intellectual development is an ability to feel, comprehend and efficiently use emotions for better mutual relations. Emotional intellectual development is characterized by ability to self-comprehend, manage one's mood, motives, compassion and relationships. There is no question, that thinking styles and emotional intellectual development are cognitive ability of individual (Cooper & Sawaf, 1994).

Studying of various approaches to essence of development of future teachers' professional thinking culture allowed to define it as the system education including set of motivating needs, professional and valuable orientations, reflexive abilities, the integrative characteristics of thinking which are shown in individual and personal, professional and informative, sociocultural components (Sarsekeyeva, 2011).

### ***Aim of the Study***

Develop theoretically pedagogical system of development of future teachers' professional thinking culture.

### ***Research questions***

What does professional thinking culture mean?

### ***Methods***

The research was based in Karaganda state university. Full development of professional thinking culture was inspected among students of Karagandy State University. Total amount of experiment participants was 448 students, 225 students in control group and 223 in experimental group. Students with traditional form of study were put into control group for confirmation of objectiveness of the pilot testing.

Set of theoretical methods was used for the solution of research problems: the system analysis of philosophical, psychology and pedagogical literature on the studied problem, generalization and classification of pedagogical publications, the educational and methodical documentation analysis, design of systems and processes.

### ***Results***

Vocational training of a teacher is a system of vocational education aiming to acquisition by apprentice the skills necessary for future professional activity.

On the basis of the analysis of the state obligatory standard of education on the specialty 5B010200 – “Pedagogics and a technique of elementary education” [16], and also on the basis of the working curriculum of modular educational



program we determined structure of vocational training of the elementary school teacher presented in Table 1.

**Table 1.** Structure of Vocational Training of the Elementary School Teacher  
*Vocational training of students to State Obligatory Standard of Education of the Republic of Kazakhstan*

General education disciplines	Basic disciplines	Major subjects
History of Kazakhstan	Introduction to a pedagogical profession	Bases of the modern Russian language
Fundamentals of law	Psychology and development of human beings	Technique of teaching Russian language at elementary school
The outlines of Economics	Pedagogics	The theory and technique of educational work at elementary school
Philosophy	Self-knowledge	Technique of manual training at elementary school
Political science	Age physiology and school hygiene	Technique of teaching mathematics for children with disabilities at elementary school
Sociology	Ethnopedagogics	Musical education of children with disabilities
Informatics	History of pedagogics	Special pedagogics
Foreign language	Psychological-pedagogical diagnostics of the identity of the younger school student	Pedagogical innovatics
Kazakh language	Bases of pedagogical monitoring	Innovative technologies at special educational institutions
Ecology and sustainable development	Features of education and breeding of first graders	Technique of teaching the Kazakh language for children with disabilities at elementary school
Fundamentals of health and safety	Technique of teaching informatics at elementary school	
	Infantile literature	
	Technique of training in the fine arts at elementary school	
	Technique of physical training at elementary school	
	Technique of teaching "Self-knowledge" at elementary school	
	Technique of musical education at elementary school	
	Development of spelling vigilance of younger school students	
	Ecological education of younger school students	

5B010200 - "Pedagogics and a technique of elementary education" for bachelor degree

According to the sixth section of The State Obligatory Standard of Education of the Republic of Kazakhstan on the specialty 5B010200 - "Pedagogics and a technique of elementary training" the qualification characteristic of the graduate

and requirements to the key competences of the bachelor are presented in the next clauses:

- student should have notion of scientific, philosophical and religious pictures of the universe, of the essence, appointment and meaning of the existence of mankind; of market economy; of various political trends and parties; of rights and duties of young specialists;

- should know the main doctrines in the social humanities field, the methods of these sciences which are governing the relations of the person to the person, to the society, to the environment; historical feature and specifics of establishment and formation of various social structures on the territory of the Republic of Kazakhstan, cultural history of the Kazakh people; principles of studying of the public phenomena and processes, bases of economic development of the public formations, state system, activity of political parties and public organizations; main directions and prospects of a development of education and all-professional sciences; basic provisions of labor protection and safety measures; environmental problems; age physiological features of students; theoretical and empirical methods of researches of pedagogical science;

- should be able to organize one's work according to the scientific basis, to be able to use computer methods of collecting, storage and information processing; to contribute to the formation of students' scientific views on processes of social development; to propagandize a healthy lifestyle, to analyze, extend the best pedagogical practices of training and education in elementary school; to orientate in special literature for training and related questions; to use competently professional lexicon in the activity; to select and integrate training material; to make independently necessary didactic materials, to use technical means of teaching in educational process of elementary school;

- should have skills on development and implementation of projects of teaching and educational process;

- should be qualified to formulation and processing a solution of pedagogical problems, to promote improvement of quality of education (The State Obligatory Standard of Education of the Republic of Kazakhstan, 2010).

The final result of pedagogical education is formation of professional culture of future teacher which represents system of universal ideas, professional and valuable orientations and qualities of personality, universal ways of perception and humanistic methods of pedagogical activity. Existence of such culture allows teacher to plunge into the inner world of a school student, to study and diagnose the level of development of pupils and to give them new layers of spiritual life of mankind.

Full development of professional thinking culture was inspected among students of Karagandy State University. Total amount of experiment participants was 448 students, 225 students in control group and 223 in experimental group. Students with traditional form of study were put into control group for confirmation of objectiveness of the pilot testing.

Evidence of quality and quantity points describes the level of full development of professional thinking culture, which is, based on the mental experiment, classified into three level: high, medium and low.

The high level of professional thinking culture is characterized by having intrinsic motive as an aim; persistent aspiration to obtain a degree, to learn new



information on science development; by readiness for self-education and improvement of professional culture; by high level of development of individual value position on the matter of social environment; in-depth and systematic knowledge of pedagogical disciplines; competency to distinguish connection between subjects and in the subject itself; conscious control of intellectual operations and ability to identify the key point; the confidence in proving the true assertion and ability to refute false; well-weighed shift of thinking operations and methods to other subjects; high level of culture of speech, expressiveness of verbal means, ability to conduct a dialog; steady demonstration of moral quality in behavior, socio-communicatory and professionally-creative intercommunication; high level of individual activity, self-direction of social behavior; capability for self-analysis, self-evaluation and self-correction; by being confident in yourself, persistence in decision making and its realization, by readiness to think in abnormal situations.

Pedagogical evaluation of students of medium level of professional thinking culture determined by stable positive motivation; conscious aspiration for self-improvement; sufficiently expressed focus on rising professional culture, aspiration to become competent specialist, upgrade the level by self-education; personal orientation on sociocultural norms and values; sufficient level of general professional knowledge and skills; optimal utilization of mental activity's rules and methods; ability to find different connections and relations between learning subjects with certain help; predominance of written speech above oral, lack of strict sequence in responses and reports; sufficient evidence of moral qualities in communication with other people; ability of self-fulfillment and self-organization in profession; sufficient ability to self-analysis, self-evaluation and self-correction; ability of composure and display of determination during execution of tasks in hand.

Low level evidence of professional thinking culture is described by insufficient situational evidence of cognitive motives and needs; lack of stable motivation for purposeful learning of selected profession; mild need for professional culture upgrade; technical acceptance of sociocultural norms and values; insufficient level of general professional knowledge, inability to see connections between subjects; involuntariness of attention and intellectual operation, lack of definiteness, sequence and conclusiveness; low degree of cultural information conveyance, haphazardness of oral and written speech; mild display of professional and personal qualities in communication with other people; weak situational self-direction (depending on personal motives, mood), mild aspiration towards individual disposal of own shortcomings, counting on others; lack of self-confidence, inability to execute task in hand under negative external interference.

Generalized quantitative results of ascertaining experiment on levels of full development of components of students' professional thinking culture summarized in the Table 2.

**Table 2.** Overall Level of Full Development of Students' Professional Thinking Culture (ascertaining experiment)

Levels	Control group	Experimental group
Low	48.30%	49.18%
Medium	31.85%	31.69%

High

19.85%

19.13%

Guarantee of success and efficiency of the process of development of future teachers' professional thinking culture is systematic approach to it. In this case there is a disclosure of object integrity, definition of diverse types of communication of the object and their data in a uniform picture. Considering it, the pedagogical system of development of future teachers' professional thinking culture was developed (Figure 1).

The pedagogical system is understood as set of the interconnected means, methods and processes necessary for creation of organized, purposeful pedagogical influence on the personality formation with the set qualities.

Developed pedagogical system of development of future teachers' professional thinking culture is the interaction of such components as purposeful, informative, activity, control-evaluative, effective

*Target component.* First of all, it should be noted that the control system of process always has the purpose which defines the contents and structure of any educational system. The purpose statement is the important task of philosophy and pedagogics, philosophical judgment of culture image of the modern specialist's professional thinking as the basis of pedagogical goal-setting reflecting a system view on the specialist's professional thinking culture, professional and cultural approach to its development in future specialist and expansion of its productive and creative relation to culture images during which development and self-development of the specialist's professional thinking culture as the carrier and the creator of professional culture and culture in general, i.e. reproduction of future expert as the subject of culture is carried out.

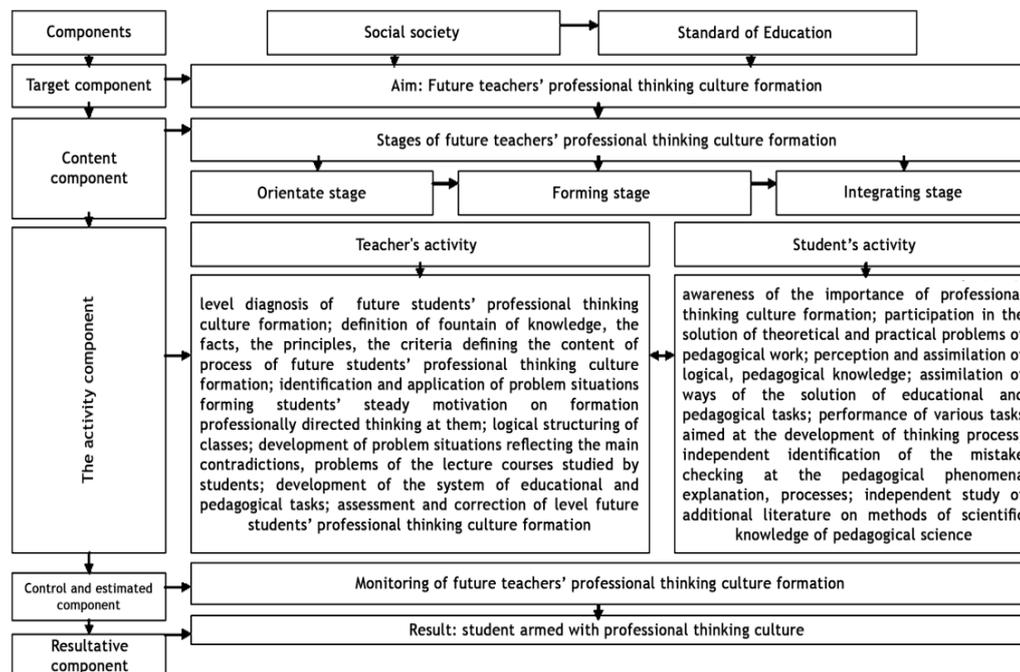


Figure 1. Pedagogical system of development of future teachers' professional thinking culture



In this regard the target component of pedagogical system is formed under the influence of the following various levels components: the social order of society (training of innovative type specialists on specialty 5B010200 – "Pedagogics and methodic of primary education"); State obligatory standard of formation of the Republic of Kazakhstan on specialty ('Kazakhstan truth', 2000).

For introduction to educational process of a pedagogical goal-setting as research showed, it is necessary:

- to present structure of professional thinking culture completely and to define characteristics (indicators of professional thinking culture formation) essential to estimation of efficiency of conditions of professional thinking culture formation;
- to develop system of monitoring of professional thinking culture formation for what it is necessary to pick up the professional thinking cultures of technology of diagnosis focused on structure, tools;
- as formation of future specialist's professional thinking culture happens during the entire period of professional education, the aiming of all process of professional education at this development throughout the entire period of vocational training of future specialist is necessary;
- activity for students' professional thinking culture formation have to be carried out on a voluntary basis that will promote creative activity of all participants of this activity.

The conscious goal-setting defines a content component of development of future teachers' professional thinking culture which includes definition of knowledge sources, theoretical provisions, the facts, the phenomena, internal mechanisms, the stages defining the substantial party of process of students' professional thinking culture formation.

The pedagogical system of development of future teachers' professional thinking culture assumes realization of 3 interconnected stages: focusing, forming and integrating. Dynamism of this pedagogical system allows to consider its final state as the planned result of mastering culture of professional thinking in the course of training of future teachers.

*The focusing stage* is connected with strengthening of educational process orientation on formation of an individual and personal component basic indicators of professional thinking culture. At this stage the special attention is paid to development of professional orientation of future teacher identity, his/her orientation in the content of the formed theoretical knowledge, intellectual abilities.

*At the second stage* the substantial and methodical basis of professional thinking culture formation is based on updating of the obligatory and main subjects with use of design technology of future teachers training system in pedagogical disciplines, training technologies in the solution of educational and pedagogical tasks, information and methodical ensuring pedagogical disciplines that form the main indicators of a professional and informative component of culture of the studied quality.

*The integrating stage* is connected with formation of basic indicators of a sociocultural component of future teachers professional thinking. The special attention is paid to correction of culture level formation of this quality. At this stage, the results of students' educational and practical activities are integrated in

the substantial, technological and personal plan, and opportunities for professional self-improvement of the personality are considered.

*The activity component* includes teacher and student interaction, and teacher interaction is the main thing, and student's influence on teacher is reciprocal. In general, interaction acts is a process of coordinated actions of subjects, thus specific features, opportunities, requirements trained on the basis of studying of their educational potential, design of intellectual prospects, personal development and formation are considered.

*Control-evaluative component.* Monitoring of development of future teachers' professional thinking culture consists of collecting, storage, information processing about student's activity and an assessment of results. In case of unsatisfactory result is its correction that allows to provide monitoring of culture formation level of the studied quality.

Students carry out a self-assessment when monitoring culture level formation of professional thinking at each stage. Process of introspection and a self-assessment of activity, the achievements in culture formation of professional thinking as one of the professional qualities necessary for future teacher, first of all, it gives to the student a support for further professional self-development.

*Effective component.* As a result of pedagogical system of professional thinking culture formation is the identity of future teacher with culture which existence will allow it acts independently, creatively to solve professional problems of any difficulty level, to predict and model pedagogical process according to goals.

Process of development of future teachers' professional thinking culture is subdivided into the stages covering study years in higher education institution. Traditional forms of pedagogical disciplines studying are realized in the system of lectures, practical classes, students independent work. Formation of pedagogical thinking, as follows ability to solve pedagogical problems, to resolve pedagogical situations, ability to organize the personal developing environment is particular importance.

The check cut of forming stage of the experiment was conducted to determine the effectiveness of pedagogical system of development of future teachers' professional thinking culture. The results of the check cut of forming experiment shows the increase of the level of development of future teachers' professional thinking culture, as shown on the Table 3.

**Table 3.** Overall level of development of students' professional thinking culture (developed experiment)

Groups / Levels	Control group	Experimental group
Low	44.74%	17.94%
Medium	35.11%	34.83%
High	20.15%	47.23%

The represented sample data of pilot testing confirms, that on the average the overall level of development of future teachers' professional thinking culture in experimental group increased in comparison with control group. It allows for the conclusion, that tasks to develop future teachers' professional thinking culture in experimental group were concluded most fully.



## Discussion and Conclusion

The interest is represented by analogical researches which are devoted to the thinking of both future teachers and practical educators.

The problem of thinking forms influence on emotional perceptions of teachers was explored by S. Saxena, S. Jain & R. Jain (2013). Their research was to find different thinking forms influence within teachers' emotional perceptions. Forms of thinking are shown in person's ability to think and reflect. Researchers carried out the analysis of classification of various thinking styles based on functions, forms, levels of training. There was effort to find relation between these two cognitions in this research. The goal of research was to find out the various forms' influence (monarchical, hierarchical, oligarchical and anarchical) from styles of thinking on emotional intellectual formation of pedagogical colleges' teachers in Chhattisgarh state of India. 50 teachers took part in this research, 25 of them are men and other 25 are women. The thinking styles' table and the table of emotional intellectual development are of interest. The results of research showed that all four ways of thinking styles showed significant difference of emotional intellectual development. Besides this, sex differences in teachers training also showed significant difference in emotional intellectual development. Gender features of teachers' thinking styles also became the subject of research of foreign scientists (Saroj, 2006).

1. The culture of teacher's professional thinking represents difficult system and purposeful formation of professional thinking culture can be only a consequence of specially organized teaching and educational process of the adequate cogitative activity to these features.

2. The pedagogical system of future teachers' professional thinking culture formation represents set of components, as follows target (purpose), content (the focusing, forming, integrating stages of culture formation of the studied quality), activity (teacher and student content of activity), control and estimated (monitoring of culture formation level of required quality), productive (formation levels of the studied quality).

## Implications and Recommendations

The finished research allows formulating these recommendations:

- culture formation of professional thinking of future teachers requires the focused work within educational process in university, which should be started from the first year using large potential of general academic, basic and main disciplines;

- in order to increase effectiveness of professional thinking of future teachers the cognitive activity needs to organize with the considering the individual psychological differences of students based on the unity of individualization and differentiation in education;

- realization of pedagogical system in culture formation of professional thinking of future teachers will be possible only with the concerted coordinated organizing methodical activity of pedagogical team.

At first our research's prospects related with the development content of culture formation of professional thinking. Secondly, they related with the creation of computer basis of various types of tasks and pedagogical situations. In the third place the elaboration of monitoring program of effectiveness of culture formation in

professional thinking. The ideas of creating a culture of professional thinking in order to improve the expert's competence may also be reflected in the organization and management of the system of continuing education (school-university-postgraduate education).

Improving of pedagogical process in High School requires realization of new approaches in preparation of future teachers. Our devised pedagogical system of development of future teachers' professional thinking culture can be used in High School's educational process.

### Disclosure statement

No potential conflict of interest was reported by the authors.

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