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Training Prospective Elementary School Teachers for Developing Reflection in Pupils Based on Innovative Technologies

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ABSTRACT

The research investigated the possibilities of training prospective elementary school teachers for developing reflection in pupils based on innovative technologies. The research was based on special philosophical, psychological, pedagogical, scientific, and methodological literature. The concepts of "reflection" and "innovative technology" were defined. The motivational, creative, subject-specific, technological, and reflective components used in the training of students for innovative activity were analyzed. An optional discipline titled "Methods of Developing Learning Reflection in Students based on Innovative Technologies", which was prepared for the experiment, was offered. A high-school class structure was created, which based on the training of students for reflection through determination of goal appropriateness, content of work aimed at developing reflection in pupils, and the notion of not limiting oneself to reflection only when using theoretical knowledge in practice. The research also identified the elements that will lay the foundation for the organization and management of the implementation of innovative technologies in the learning process, specified the main directions in the training of prospective elementary school teachers for developing reflection in pupils based on innovative technologies. This research can serve as a theoretical framework for the development of pedagogical science. The program that was developed at the Y. Altynsarin Arkalyk State Pedagogical Institute can be used in higher educational pedagogical institutions.

KEYWORDS
Personnel training, innovative teaching, learning reflection, motivational component, creative component.

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Introduction

Due to the changes that are taking place in the Republic of Kazakhstan during the development of the society, educational institutions face the problem of developing an individual personality capable of creative work and original thinking, rather than reiterating previously systematized knowledge.

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The main goal of higher education is not only to train prospective specialists for adaptation to the current situation, but also to study actively the updated content of education. A new educational paradigm is formed, which provides for civilized development.

The relevance of the issue is confirmed by regulatory legal acts of the Republic of Kazakhstan in the field of education: the Law on Education, the "Development of Education in 2011-2020" program, and the "One Hundred Specific Steps" program.

The Law of the Republic of Kazakhstan "On Education" reads: in order to learn national and universal human values, to master the achievements of science and practice, we shall organize on a high level the development of individual capacities of creative and spiritual development and intellectual qualities of the person ("The Law on Education of the Republic of Kazakhstan", 2007).

The "Development of Education in 2011-2020" program reads: nowadays, the main goal of education is not only the system of knowledge, abilities, and skills, but also their use in life, independent education, and development of working skills in the age of changes; the goal of quality education is deduced on this basis (State Program on the Development of Education, 2010). At that, the government order and demand for educational institutions should correspond to requirements.

According to the "One Hundred Specific Steps" program, the training of skilled personnel with a view to making the Republic of Kazakhstan one of the thirty developed countries and the sharing of the experience to other educational institutions of the country, which improves the competitiveness of the trained personnel, is one of the main goals (Nazarbaev, 2015).

The goal of the national educational system is to provide the learning process with now content based on new discoveries. Therefore, the education of a person with a rich spiritual world, a person capable of quickly adapting to the situation, a competitive person with a developed civil and personal character is one of the main goals of the society. This goal is set by the need to use reflection when studying the updated content of education.

The main goal of the training of prospective elementary school teachers for developing learning reflection in pupils is to form and develop such personality traits as self-developing, self-improvement, self-regulation, self-control, and stimulation of self-assessment by prospective educational specialists and pupils. Therefore, prospective specialists should have such pedagogical qualities as self-development, self-regulation, and self-assessment, which enables them to establish effective relationships with students with regard to the individual characteristics of the latter (Ryan & Ryan, 2013).

Reflection (which derives from the Latin word "reflexio" meaning turning away or back) is a term that denotes the analysis of a cognitive act. The term "reflection" characterizes the mental state of consciousness that turns to its thoughts (Nurgaliev et al., 1996).

Reflection is full of doubts and controversies; it implies self-control, self-cognition, and analysis of one's mental state; it is aimed at analyzing one's theoretical work and learning its regularities (Tuymebayev, 2008).

Reflection is a source of knowledge. Reflection enables teachers to understand their actions, assess their effectiveness or ineffectiveness, and determine the courses of future professional growth.

According to Akhmetova & Gurye (2001), reflection is a technology of effectiveness and efficiency of the teacher's pedagogical activity and a vital tool for understanding the situation and a certain pedagogical phenomenon.

Researchers classified the main conditions for improving the teachers' reflection on their actions as follows (Ryan & Ryan, 2013; Domayev, 1988):

– the desire to work with high commitment;

– ability to "use" one's inner voice;

– psychological readiness for self-analysis and analysis of one's actions;

– responsibility for the results of pedagogical activity;

– aspiration for professionalism;

– developed inner world (empathy, delicacy, conscientiousness, etc.);

– knowledge and understanding of the meaning of verbal and nonverbal information obtained from without.

Therefore, prospective elementary school teachers should be able to reflect on their actions for the purpose of systematic development of learning reflection. In other words, they should be able to analyze and take such pedagogical actions as self-development, self-improvement, self-fulfillment, self-activation, self-organization, and self-assessment (Pehoiu & Homeghiu, 2014).

D. Akhmetova, L. Gurye classified the stages of teacher reflection in the educational process as follows:

1. Immediate "Stop" signal in the teacher's mind that allows quickly assessing the situation, reaction of the audience and individual participants of the pedagogical process or communication.

2. "Launch" of a train of thought: "What am I doing? What is going on right now? How should I do this?"

3. Assessment of one's intellectual and emotional state and the state of one's partners in communication (identification by eye movement, gestures, adequacy of reactions).

4. Insight (sudden decision, unexpected creative thought: "I know how to do this" or "I do not know yet, but I am thinking…").

5. Decision-making (in the pedagogical process – changing the tone or rhythm of speech, nature of expressions, form of work, pose, facial and eye expression, gestures, etc.).

6. Pedagogical improvisation (Akhmetova & Gurye, 2001).

This means that prospective elementary school teachers can use algorithms of reflection described in the above studies to organize work effectively, which helps to develop learning reflection in elementary school students during learning.

I. V. Mushtavinskaya (2001) classified the summary characteristic of pedagogical reflection as follows:

– *Teacher's attitude to his or her activity*. The ability to understand pedagogical practice and create a criterion of pedagogical actions. Analysis of changes in education.

– *Teacher's attitude to the content of pedagogical reflection*. Planning and design of the educational process and correction of goals and means of education, choice of strategy and methods of organization of the educational process.

– *Teacher's attitude to students*. The ability to establish feedback in the "teacher-student" system professionally, to equip students with original learning methods, the ability to assess the effectiveness of students' activity.

Therefore, in order to develop students' abilities of self-management (self-regulation, self-organization, and self-control), it is necessary to creative conditions for the creative stance of an active subject, which is taken in the general system of teamwork in the class. The learning process is organized based on creative interaction with the students through the solution of educational problems. Thus, the teacher acts as a person who makes learning easier. The teacher creates an open atmosphere of mutual trust and free communication, which allows students to develop themselves during learning (Boboc & Nordgren, 2014).

According to A. Ye. Zhumabayeva (2009), with the implementation of the developing education principle and innovation in the learning process, reflection starts playing a greater role and is becoming one of the main conditions for the development of the personality and knowledge. A. Ye. Zhumabayeva argues that the reflective process consists of analysis, synthesis, comparison, and conclusion, which lays the foundation for the creation of new plans. Therefore, due to the changes in the society, it is necessary to train prospective teachers to develop learning reflection in students using a methodological approach based on innovative technologies aimed at developing education, to study the updated content of knowledge, and to plan the learning process in a new way, through the stages of reflection.

According to T. B. Kenzhebayeva (2014), reflection is a principle of human thinking that aims a person on understanding and feeling the boundaries of the essence, a level of capacity as a personality, principles that aim on comprehending one's erudition, critically analyzing one's level of knowledge, self-cognition, discovering the peculiarities of the spiritual world and its inner structure. T. B. Kenzhebayeva argues that reflection is the main mechanism of development of the prospective teacher's intellectual potential and motivation for the purpose of achieving a high level of professionalism, self-improvement, critical attitude to one's occupation, and objective self-assessment. Therefore, the training of prospective teachers for developing learning reflection in students should teach the former to analyze their actions, improve themselves, and assess their activity.

A. Ye. Abuov (2005) investigated reflection in combination with the creative approach and argued that reflective-creative education was aimed at self-cognition, self-perception, and self-improvement from the creative part. Thus, work that aims to develop learning reflection is a means of developing the creative potential of students.

At the same time, it is necessary to implement innovative technologies in the learning process, which would allow training competitive and skills

elementary school teachers. Therefore, the main goal of the research is to investigate the possibilities of training prospective elementary school teachers for developing reflection in pupils based on innovative technologies.

Methods

Theoretical methods: study and analysis of special philosophical, psychological, pedagogical, scientific, and methodological literature on the problems at hand; analysis of academic and methodological documents; general theoretical methods of analysis and synthesis; investigation and generalization of pedagogical experience on the research subject; conceptualization of educational practices.

Empirical methods: an optional discipline "Methods of Developing Learning Reflection in Students based on Innovative Technologies", which includes 135 hours and three credits, was implemented at the Y. Altynsarin Arkalyk State Pedagogical Institute. The academic and methodological framework is currently being prepared; experimental work is being done.

Data, Analysis, and Results

The effective use of modern pedagogical technologies will enable elementary school teachers to use the qualities that help to develop learning reflection in students and affect cognitive processes, since any pedagogical technology is an intermediate structure between science and practice. The theory of learning is the foundation of the teacher's creativity. A pedagogical technology is a projection of the theory of learning onto the teacher's and student's actions for the purpose of effective organization and implementation of the learning process in accordance with the set goal.

The peculiarity of pedagogical innovation is that it is future-oriented; it emerges when it is impossible to solve problems by existing means. One such problem is the development of learning reflection in students by using innovative technologies in the training of prospective elementary school teachers.

T. S. Sabyrov (1996) formulated the necessary conditions for training teachers for effective use of methods and forms that help to improve the cognitive actions of students. K. A. Sarbasova (2005) outlined the possibilities and ways of improving the training of elementary school teachers based on innovative pedagogical technologies.

T. Sh. Domayev (1988) investigated the ways and means of improving the training of elementary school teachers in the system of pedagogical education:

– providing program and methodological support of the educational process;

– enhancing the professional pedagogical orientation of student education;

– improving the forms and methods of psychological, pedagogical, and methodological training;

– solving problems related to the development of the elementary school teacher's personality in the "school – high school – school" system.

According to Domayev (1988), the peculiarity of the pedagogical activity of elementary school teachers is determined by its complexity, which is related to the content of the studied disciplines and educational measures. Domayev

classified the nature of the pedagogical activity of elementary school teachers as follows:

– holistically determining the peculiarities of elementary school students;

– setting educational and cognitive problems in accordance with the peculiarities of a specific class or specific student;

– planning curricular and extracurricular events in accordance with the students' abilities;

– organizing curriculum performance;

– acquiring information about the work of each student through feedback, assisting the student if necessary;

– clarifying the set plans, providing consultation, organizing additional classes;

– giving a final report on the work, analyzing the work, making sure that the work corresponds with the set goals and objectives (Domayev, 1988).

Thus, the main object of the pedagogical activity of prospective elementary school teachers is the pupil who has just begun his or her learning path; proper education and development of the pupil largely depends on the scope of knowledge, abilities, and skills, and the cognitive activity, the foundation whereof is laid in elementary school.

Innovative technologies are based on democratization and humanization of knowledge, improvement of information quality, management effectiveness, and management of personal development. Innovative technologies play a special role in the development of the pupil as a personality with his or her own opinion and point of view, capable of controlling him- or herself, improving and assessing him- or herself.

According to P. I. Tretyakov (2001), innovation is the new content and its organization, while the implementation of innovation is merely the organization of this innovation. Tretyakov argues that the innovative process manifests in the formation, development, and organization of a new content, accompanied by active self-determination and self-expression of the personality.

Interests, hobbies, and capacities of the subjects of education, as well as the needs of the developing social practice require modern pedagogical technologies that meet the dictates of times.

I. A. Kolesnikova (2003) gives the following definition: a technology means the continuity of mastered methods in the practice of professional organization from the purposeful advancement of the pedagogical process to the obtainment of results and assessment. It is the key to executing a pedagogical strategy and the logical structure of work, which is predicted with a high degree of probability, with a view to achieving the estimated result.

According to M. V. Klarin (1995), an educational technology means an order of work and a systematic set of all personal, instrumental, and methodological techniques that are used to achieve pedagogical goals.

Thus, a pedagogical technology is an ordered system of actions that guarantees the achievement of pedagogical goals.

Higher education not only gives prospective specialists knowledge, skills, and abilities, but also develops the personality. The relevant problems of

pedagogical science are as follows: to give and receive vocational education that meets the modern requirements, to improve professional qualities, to update radically the scientific and methodological system of education, to change the types of methods and organization of education, to bridge the gap between educational experience and modern social requirements, to differentiate innovation in education, and to enhance its role in the continuity in advanced training.

Methodologist A. Kh. Alimov (2013) wrote that nowadays, only being educated is not enough for a person. The main goal of the educational system is to create various conditions for the development of a personality that is capable of analyzing his or her thoughts and actions, to engage in self-assessment, to realize his or her possibilities and abilities, and to plan his or her life and actions responsibly. Only such a personality with developed reflective qualities can work effectively for the benefit of the society and find its place in the new world.

Schools require specialists capable of cooperating with all the participants of the pedagogical process, proficient in modern educational technologies, and capable of making decisions quickly in various pedagogical situations. This ability of developing skills of students' innovative actions is realized when teaching the main subjects under the "Theory and Methods of Teaching Basic Subjects and Subjects in High School" system through feedback.

The training of prospective elementary school teachers for innovative actions should provide:

– understanding of the importance of using innovative technologies in teaching in terms of the motivational component;

– creative perception of pedagogical innovations in terms of the creative component;

– good proficiency in the subject and innovative teaching technologies in terms of the subject-technological component;

– ability to analyze one's actions and determining the correspondence of one's actions to the goals of innovation in terms of the reflective component (Slastenin & Podymova, 1997).

During the use of obtained theoretical knowledge by students when studying the discipline of teaching the theory and methods of the subject in practical activity, it is necessary not to be limited by the reflection of one's actions; it is necessary to teach how to use reflection, while determining the correspondence of goals and the content of work aimed at developing reflection in students. At the same time, it is necessary to train prospective elementary school teachers for mastering the skills of analyzing new standards of education and new textbooks, prepared in accordance with the new standards, and using innovative technologies effectively.

In order to solve this problem, an optional discipline "Methods of Developing Learning Reflection in Students based on Innovative Technologies", which includes 135 hours and three credits, was implemented at the Y. Altynsarin Arkalyk State Pedagogical Institute by the decision of the Academic Board (Minutes No. 11). The academic and methodological framework is currently being prepared and experimental work is being done according to Table 1.

Table 1. The subject plan of the "Methods of Developing Learning Reflection in Students based on Innovative Technologies" discipline

No.	*Lecture topic*	*Form of learning*				
		Full-time				
		Total	Lecture	Practice	Independent work	Independent work with teacher
Module I. Methodological framework of the "Methods of Developing Learning Reflection in Students based on Innovative Technologies" discipline						
I.1	"Methods of Developing Learning Reflection in Students based on Innovative Technologies" as a subject	9	1	2	6	3
I.2	Theoretical aspects of the "reflection" concept	9	1	2	6	3
I.3	Scientific and theoretical framework of innovative technologies in elementary education	9	1	2	6	3
I.4	Developing reflection in students based on innovative technologies	9	1	2	6	3
Module II. Describing the reflection of the study of updated education content						
II.1	The meaning of reflection in the study of upadted education content	9	1	2	6	3
II.2	The role and features of learning reflection in the content of elementary education	9	1	2	6	3
II.3	Features of the organization of reflection development in students	9	1	2	6	3
II.4	The role of the work on the development of reflection in the structure of the class	9	1	2	6	3
II.5	Types of reflective exercises	9	1	2	6	3
Module III. Innovative technologies used to develop learning reflection in students						
III.1	Innovative technologies in the development of learning reflection in students	9	1	2	6	3
III.2	The technology of critical thinking through reading and writing	9	1	2	6	3
III.3	Methods and techniques of developing learning reflection in students based on the technology of critical thinking through reading and writing	9	1	2	6	3
III.4	TIPS (theory of inventive problem solving) technology in elementary education	9	1	2	6	3
III.5	Methods and techniques of developing learning reflection in students based on the TIPS technology	9	1	2	6	3
III.6	Developing learning reflection in students based on interactive methods	9	1	2	6	3
Total		135	15	30	90	45

What follows is the structure of a practical class on the topic "Developing Learning Reflection in Students based on the Technology of Critical Thinking through Reading and Writing" based on the "Methods of Developing Learning Reflection in Students based on Innovative Technologies" discipline. The class involves the analysis of regulatory legal acts on education: the Law "On Education" of the Republic of Kazakhstan (2007), the State Standard of Elementary, Basic, and Secondary Education (2010), and study guides (Teaching as a Search. Objects and Methods of Developing Critical Thinking in Students by S. Mirseitova (2011), Problems of Using Interactive Methods in High School

by A. Kh. Alimov (2013), and Modern Pedagogical Teaching Technologies by N. Koshkarbekov (2007).

Goal of the practical class: to analyze the critical thinking through reading and writing technology that is used in elementary school and to study its types and methodology. To determine the effectiveness of developing learning reflection in students, to select and compile techniques that correspond to the stages and content of classes, and to develop mastery of organizing and holding classes.

Objectives: logical and didactic analysis of the topic "Developing Learning Reflection in Students based on the Technology of Critical Thinking through Reading and Writing", implementation of innovative technologies in teaching according in terms of the motivational component.

To determine the methodological and conceptual nature and features of the topic "Developing Learning Reflection in Students based on the Technology of Critical Thinking through Reading and Writing", to develop creative and search abilities according in terms of the creative component.

Good proficiency in the subject, ability to analyze from the methodological perspective the effective means and techniques of "Developing Learning Reflection in Students based on the Technology of Critical Thinking through Reading and Writing", students' mastery of innovation in learning techniques at various stages of the class in terms of the technological component.

Ability to analyze one's actions and determine the correspondence of one's actions to the goal of innovation in terms of the reflective component. To use acquired knowledge in practice to develop active thinking in students and to realize one's ability of reflection.

Type: cognitive lesson (repeat, systematize, and generalize the studied material).

Teaching methods: master-class, explanation, substantiation, illustration, demonstration.

Equipment: slides on the class subject, study guides, textbooks, flipcharts.

Contents:

1. INVITATION Stage (motivational and orientation component) – 8 minutes:

Warmup

Determination of the psychological state of participants, the nature of their concern. Search for methods and approaches to eliminating the concern of the audience and creating the atmosphere required for creative work.

According to the "Think – Work in Pairs – Discuss" strategy, at the end of the class, students are offered the following questions for reflecting on their actions.

1. As a pupil – how do you feel and what have you learned?

2. As a pupil – what types of thinking have you used in class?

3. As a teacher – what to such classes give to your subject and what could they give?

4. As a teacher – what are the teacher's actions aimed at implementing the strategy? What questions arose during these actions? If questions did arise, explain the algorithm of action.

Rules of working in small groups.

Explanation and substantiation of the advantages of working in small groups. Methods of organizing group work.

Work in a group. To perform a logical and didactic analysis on the "Developing Learning Reflection in Students based on the Technology of Critical Thinking through Reading and Writing" subject. To generalized the topics studied in class with a view to assigning group tasks to consolidate the learned material:

TASK I: Strategies of the "Critical Thinking through Reading and Writing" technology that are used in elementary school. Analysis.

TASK II: The authors of the "Critical Thinking through Reading and Writing" technology. Definition.

TASK III: The structure of the class designed based on the "Critical Thinking through Reading and Writing" technology. Analysis.

TASK IV: The selection of creative tasks for each stage of the class based on the "Critical Thinking through Reading and Writing" technology. Analysis.

2. Construction stage (action and operation component) – 32 minutes:

Master-class: Based on the students' acquired knowledge on the "Developing Learning Reflection in Students based on the Technology of Critical Thinking through Reading and Writing" subject, to teach students to use acquired theoretical knowledge in practice by dividing the students into four subgroups. Students first choose any topic from the class textbook, determine the general goals and objectives, and then compile the plan of the class stage-by-stage in a group.

Assign group tasks according to class stages:

1. Work on developing learning reflection in students at the "Recall" stage.

2. Work on developing learning reflection in students at the "Comprehension of content" stage.

3. Work on developing learning reflection in students at the "Reflection" stage.

4. Physical exercise minute, assessment, reflection on one's activity.

After compiling the plan for the class, one student from each group acts as a teacher and holds the class for each stage of the class. The other students act as his or her pupils.

3. REFLECTION STAGE (reflective and evaluative component) – 10 minutes:

ANALYSIS OF THE CLASS: *According to the "Think – Work in Pairs – Discuss" strategy, at the end of the class, students are offered the following questions for reflecting on their actions.*

1. As a pupil – how do you feel and what have you learned?

2. As a pupil – what types of thinking have you used in class?

3. As a teacher – what to such classes give to your subject and what could they give?

4. As a teacher – what are the teacher's actions aimed at implementing the strategy? What questions arose during these actions? If questions did arise, explain the algorithm of action.

Student self-assessment. Assessment sheets are handed out. Students reflect and assess their actions during the class by each criterion.

Table 2. Group work assessment sheet

Criteria / Group members	Offer ideas	Organize group work	Active in the group	Answer questions	Can reflect on their actions	Total score
By groups						

The highest score for each criterion is 4. The sum of all points is multiplied by 100 and divided by 20. Then the level of knowledge of each student is determined by the points.

Questions for discussion that students are asked after the assessment with a view to reflecting on their actions:

– What positive moments did you notice when working in the group? Was working in a group beneficial?

– Who strived to manage the work of the group? Was his or her leadership accepted by other members of the group? Why?

– What problems arose in the work of the group? Why?

– How did you solve these problems? How did you contribute to this work? In your opinion, how can these problems be solved?

Discussion

According to M. V. Klarin (1995), innovation implies not only the creation and distribution of novelties, but also a way of thinking that is typical for a mode of activity. Klarin argues that the category of novelty depends not only on time, but also on the qualities of changes. Some innovations as a pedagogical category are introduced into education by such concepts as updating, changes, and implementation of innovation. Innovative educational techniques are divided into two types:

1. Innovations that update the learning process.

2. Innovations that diversify the traditional learning process.

K. A. Sarbasova (2005) concludes that the use of innovative pedagogical technologies in high school implies changes not only in the pedagogical actions and their mechanisms, but also in the tools, and requires a reorientation of values, specific knowledge, abilities, and skills. Sarbasova establishes the following conditions in the use of innovative pedagogical technologies in high school:

– their correspondence to the personal and professional value orientations of the teacher, their change and reconstruction;

– changes in all established technologies of interaction with students;

– proficiency in new forms of actions and techniques.

According to K. A. Sarbasova, these conditions are fulfilled only in case of development of reflection and self-development of the teacher (Sarbasova, 2005).

To summarize the opinions of researchers, it is necessary to work based on innovative technologies in an updated content of knowledge. However, the implementation and use of new technologies and methods required an understanding of how to implement these innovations and what needs learning. A new direction – pedagogical innovation studies – has emerged to solve these problems. Pedagogical innovation studies investigate the nature of pedagogical innovation, its history of emergence and regularities of development, past and future traditions in respect to the subjects of education.

The organization of the implementation into the learning process of innovative technologies used to develop reflection in students and elements that will lay the foundation for management can be classified as follows:

– concepts, algorithms of innovative technologies, support base;

– criteria of implementation of innovative technologies in the development of learning reflection in students;

– mechanism for implementing innovative technologies in the educational process, with a view to developing reflection in students.

The main directions in the training of prospective elementary school teachers based on innovative technologies are as follows:

– to teach how to use modern pedagogical technologies in education;

– to improve professional competence in teaching the subject;

– to develop skills of self-education in the implementation of innovative technologies when developing learning reflection in students;

– to organize pedagogical readings on the development of learning reflection in students based on innovative technologies;

– to analyze classes (at practical classes or during pedagogical internship) that are aimed at developing learning reflection in students based on innovative technologies.

Conclusion

During effective implementation of modern pedagogical technologies, prospective elementary school teachers use qualities that help to develop learning reflection in students and affect cognitive processes, since any pedagogical technology is an intermediate structure between science and practice. The theory of learning is the foundation of the teacher's creativity. A pedagogical technology is a projection of the theory of learning onto the teacher's and student's actions for the purpose of effective organization and implementation of the learning process in accordance with the set goal. Creative mastery results in the ability to set correct goals, while predicting the result intuitively, to organize and design the plan of the class that facilitates the fundamental development of the student and allows working with interest.

By improving such actions as self-orientation, self-improvement, self-activation, self-regulation, and self-assessment, which enable students to manage their character, modern elementary school teachers can effectively teach students to reflect on their learning activity in any situations. This requires proper management and masterful organization. Thus, pedagogical work for organizing reflection enables the prospective teacher to analyze and assess the activity of students from different perspectives and to determine new directions in the effective organization at classes, with a view to stimulating the activity of students.

This research can serve as a theoretical framework for the development of pedagogical science. The program that was developed at the Y. Altynsarin Arkalyk State Pedagogical Institute can be used in pedagogical high schools.

Disclosure statement

No potential conflict of interest was reported by the authors.

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