

THE DEVELOPMENT OF PEDAGOGICAL REFLECTION OF FUTURE TEACHERS THROUGH THEIR PARTICIPATION IN INTERACTIVE TRAINING

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Abstract

In current social and cultural contexts, one of the most important professional qualities of a teacher's personality is a reflective competence. The teacher with a professional reflection is characterized by a high level of need for self-knowledge and self-development, both personal and professional; a high level of ability to analyze his/her own actions, his/her own self-analysis of professional activity; awareness and presence of perspectives for personal and professional development.

Interactive teaching has a strong potential for developing future teachers' reflective competence. Modern psychology defines interaction as an ability to interact, or to be in a dialogue mode with somebody/something. The term "interaction" is also used to denote cooperation and mutual influence of individuals or groups of people on each other based on a dialogue mode. In the context of interaction, cooperation is understood as direct interpersonal communication, which most important feature is a person's ability to "put oneself in the other person's place", that is, imagine how s/he is perceived by a partner or a group of people, and then interpret the situation and state his/her own actions.

The objective of the research was to identify pedagogical conditions that would ensure efficient functioning of the models aimed at developing pedagogical reflection of future teachers through interactive teaching used in the process of their research activity. The article specifies the content of professional teacher reflection, defines its basic characteristics; establishes its connection with other components of a teacher's readiness for research activity. It also covers the essence and the content of interactive teaching in the process of professional teacher training being a system of forms, methods and means of pedagogical interaction, focused on developing professional reflection of future teachers. The authors have identified and given

scientific credence to pedagogical conditions ensuring successful development of professional reflection of future teachers in the course of research activity through their involvement in interactive teaching. The basic criteria and indicators of pedagogical reflection developed at university in the process of interactive teaching have been defined.

Keywords: Professional Teacher Reflection, Interactive Teaching, Personal and Professional Development.

1. INTRODUCTION

At the current stage of teacher training education development the formation of future teachers' pedagogical reflection is one of their professional self-improvement and self-actualization mechanisms manifested primarily in the ability to take an analytical position towards themselves and their professional activity.

The analysis of the literature on the research problem and professional teacher training experience in a modern university resulted in identification of some contradictions between objective necessity to train teachers having a set of reflective competences, and insufficient effectiveness of the existing system of professional training, as well as between the declared principles of the person-oriented approach for future teachers' professional and personal reflection formation and traditional learning technology and assessment. The necessity to resolve these contradictions determined the research problem related to the future teachers' professional reflection formation in professional training at the university, and allowed to emphasize certain aspects in specification of pedagogical conditions of using interactive learning potential as reflective - evaluative competence forming factor for future teachers. The object of the research is the system of future teachers' professional training at the university. The aim of the research is to identify pedagogical conditions providing optimal functioning of future teachers' pedagogical reflection forming model through interactive learning at the university. The research hypothesis is based on the assumption that interactive learning focus on future teachers' pedagogical reflection formation, integrated use of interactive approaches, methods and techniques in teacher training; creation of information educational environment providing interaction; future teachers' reflective and evaluative competence formation through interactive learning, refer to pedagogical conditions that define the efficiency of future teachers' pedagogical reflection formation by means of interactive learning.

The main objective of the research is to develop a model, to define and give scientific credence to pedagogical conditions for future teachers' professional reflection formation by means of interactive learning in the university. In addition, the authors' guidance materials are expected to be further used both in the educational process of the university and the system of training and professional development of teaching staff.

The research methods contributing to the solution of the tasks are: psychological and pedagogical literature searches, interview methods (interview, questionnaire, testing); SWOT analysis; expert review; observation; modeling; pedagogical experiment; A. V. Karpov's technique determining individual reflection expression measurement, methods of mathematical and statistical analysis of experimental results. The scientific novelty consists in the facts that the essence and the content of interactive learning in the process of future teachers' professional training as a system of forms, methods and means of pedagogical interaction, focused on the formation of professional reflection of future teachers were revealed; a model of future teachers' professional reflection formation in interactive learning, which allows to determine the content of the components of the process (theoretical and methodological, substantial and active, evaluating and effective) was developed; pedagogical conditions providing the effective formation of future teachers' professional reflection in the process of interactive learning were identified and scientifically established; the basic criteria and indicators for pedagogical reflection, formed in the process of interactive teaching at the university, were defined.

2. MATERIALS AND METHODS

Nowadays the leading idea of modernizing the system of higher education is the competency-based approach, when professional training can be defined as integrated activity aimed at forming a number of competencies among university graduates. One of the important competences, determining the effectiveness of teacher's professional development, according to some researchers (B.Z Vulfov, 1995; G.G. Ernst, 2015), is reflexive competence which formation begins with professional training at the university.

Among significant features of a teacher with professional reflection, the following characteristics can be distinguished: a high level of self-knowledge and self-development necessity, both personal and professional; a high level of ability to analyze his/her own actions, self-analysis of his/her own professional activities; awareness and perspectives of personal and professional development (a conscious representation of one's image and the image of a professional in the past, present, future), etc.

Interactive learning has a high potential for future teachers' reflective competence formation. The concept of "interaction" (Lat. *inter* + *activus* – interaction) was first used in sociology and social psychology in 1930-s within the framework of the theory of symbolic interactionism, whose founders were American sociologists G. Mead, C. Cooley, and G. Bloomer. This theory considers interaction as social relations between people that determine personal development and self-creation. Later issues of interaction were considered in works of such foreign scientists as G. Chiari and M. L. Nuzzo, J.D. Raskin and others. Psychological mechanisms and didactic possibilities of interactive learning are described in the works by both Russian and foreign authors (H. Abels, L.S. Vygotsky, S.S. Kashlev, M.V. Clarín, I.B. Kondratenko, D. Mead, M.A. Petrenko, T.L. Chepel, I.I. Cherkasova). In modern psychology interaction is defined as an ability to interact, or to be in a dialogue mode with somebody/something, it denotes cooperation and mutual influence of individuals or groups of people on each other based on a dialogue mode. In the context of interaction, cooperation is understood as direct interpersonal communication, which most important feature is a person's ability to "put oneself in the other person's place", that is, imagine how he/she is perceived by a partner or a group of people, and then interpret the situation and state his/her own actions. Assessing the value of interactive learning for the formation and implementation of reflective skills and abilities, it should be noted that in interactive learning there are necessary conditions for the formation of a reflective and evaluative component of future teachers' professional competences: person-centered approach to training organization, dialogueness in cooperation, ability to change roles, which allows to assess a particular situation from different points of view, activity-based training, aimed at the formation of future teachers' personality.

The supporters of the activity direction, who considered reflection as an activity structure component (L.S. Vygotsky, A.N. Leontiev, V.A. Nedospasova, A.N. Perret-Clermont, V.V. Rubtsov and others), reflection researchers in the psychology of thinking perspective (V.V. Davydov, Y.N. Kulyutkin, I.N. Semenov, V.Y. Stepanov) and reflexive patterns of communication processes organization (V.S. Bibler, S.Y. Kurganov, A. Lipman) made a significant contribution to the study of pedagogical reflection.

Modern reflexology research distinguishes a pedagogical direction, whose exponents understand reflection as a tool for learning activity organization (O.S. Anisimov, M.E. Botsmanova, A.Z. Zack, A.V. Zakharova).

Current research on the problems of reflection formation and its mechanisms (N.G. Alekseev, L.A. Artyushina, Fred A. J. Korthagen, I.N. Semenov, S.Y. Stepanov, I.A. Stetsenko, T. F. Usheva, G.P. Schedrovitsky) defines the basic set of reflective skills and their actions, represents psychological and pedagogical tools to carry out formation level diagnosis of students' certain reflective abilities (individual reflexivity measure) (L.A. Artyushina, A.V. Karpov, I.A. Stetsenko and others).

In T.F. Usheva's research (T. F. Usheva, 2010), dedicated to students' reflective skill formation at the university, reflection is defined as "a complex mental ability to the continuous analysis and evaluation of every step of professional activity". The author classifies reflexive skills necessary for future teachers' activity management, according to their orientation, and distinguishes intellectual, personal, communicative and cooperative skills. T. F. Usheva defines reflection as a significant quality of future teachers and emphasizes the bilateral nature of this process, which turns the teacher into a genuine subject of pedagogical activity.

In his research A.V. Karpov (A.V. Karpov, 2003, 2004) proposes the reflection classification on a time-based principle. In this regard, the author distinguishes situational, retrospective and prospective reflection. The subject of retrospective reflection is prerequisites, motives and causes of the event; past behaviour self-esteem, error analysis. Situational reflection is aimed at the implementation of human behavior self-control in actual situations, its interpretation and analysis and it is revealed in the ability to correlate actions and situations and to correct one's behavior to meet changing conditions. Perspective reflection is focused on analyzing, planning and forecasting future activities and behaviour. The main behavioral characteristics of perspective reflection are careful behaviour planning, frequency of references to future events, focus on the future.

In his works, an American researcher Sternberg, R. J. (2007) discusses the problems and methods of teachers' reflexive competence formation and determines their connection with other significant abilities and skills in training. (Sternberg, R.J. (2007): *Wisdom, Intelligence, and Creativity Synthesized*. New York: Cambridge University Press). The importance of professional reflection was considered by L. Shulman (1986, 1987) and his followers, who studied teachers' "growth of knowledge", especially "pedagogical content knowledge"; M. van Manen (1991) drew attention to the study of "teachers' awareness".

In modern foreign researches the techniques of future teachers' professional reflection formation, its importance for effective teaching and its main characteristics were considered in the works by Cochran, K. F., DeRuiter, J. A., King, R. A. (1993), Shulman, L. S. (1987), Ball, D. L. (2000), Munby, H., Russell, T., Martin, A. K. (2001), Freeman, D. (2002), Loughran, J.J., Berry, A., Mulhall, P. (2012) and others.

We have developed a structural-functional model of future teachers' reflexive competence formation by means of interactive learning that includes three components: a theory and methodology component, content and activity component, an evaluation and effectiveness component.

The theory and methodology component of the model contains a description of methodological approaches, patterns and principles of future teachers' reflexive competence formation by means of interactive learning. The complexity of interactive learning requires its consideration with due account for certain methodological approaches: system, activity-based, and person-centered approaches. From the perspective of the system approach, basic characteristics of interactive learning are well-defined structure of educational system that combines interrelated components; principles that regulate the organization of the teaching process within the system; educational management algorithm, based on teacher-student interaction and aimed at achieving certain educational goals and solving specific pedagogical tasks. These features are inherent in interactive learning and allow considering it as a methodological system.

The activity approach also plays an important role in revealing the mechanism of pedagogical reflection formation in the process of interactive learning (L. S. Vygotsky, A. N. Leontiev, S. L. Rubinstein, E. G. Yudin). The activity approach makes it possible to identify the conditions for future teachers' professional reflection formation through their participation in various activities (value-based, educational, communicative, creative, play activities) in the process of interactive learning; to consider the peculiarities of the organization of these activities; to specify the forms, methods and means of their implementation. Important principles for activity approach implementation in the process of interactive learning are the principles of conscious activity and independence, reflexivity activity

From the perspective of the activity approach, interactive learning, focused on the formation of pedagogical reflection, can be defined as a special kind of pedagogical interaction. In the process of interactive learning pedagogical interaction can be implemented in three main schemes: the "teacher – student (group of students)" "student – group of students", "student – e-learning resource". Pedagogical cooperation in the process of interactive learning is an important factor in forming such a quality as subjectivity, which presupposes to consider the formation of future teachers' professional reflection from the perspective of the person-centered approach.

The content and activity component of the designed model reveals the content of the process of future teachers' reflexive competence formation by means of interactive learning, forms, methods and means of interactive learning necessary for the formation of given competencies in professional training. The evaluation and effectiveness component of the model of future teachers' reflexive competence formation by means of interactive learning combines the criteria and levels of future teachers' reflexive competence formation, methods, forms and means of control and evaluation activity.

The experimental part of the study was conducted at the premises of the Institute of national culture and intercultural communication, the faculty of foreign languages and the faculty of history and philology in Mari State University. The experimental group consisted of 76 third-year students, enrolled in the course of "Pedagogical education": 36 students of the faculty of history and philology, specialization "History and law teacher," 40 students of the Institute of national culture and intercultural communication, specialization "Native language and literature teacher". The control group consisted of 80 third-year students, enrolled in the course "Pedagogical education" at the faculty of foreign languages. In total, the study involved 156 students enrolled in the training program "Pedagogical education" in Mari State University.

The randomization of the experimental and control groups was carried out with due regard to training program ("Pedagogical education"), the level of professional training (the experimental and the control groups consisted of third-year students), the age of students (20-21 years old), the similarity of educational program specializations (future teachers studying humanity subjects).

A. Karpov's reflection intensity technique allowed to determine the development of such future teachers' personal qualities related to the ability to organize their own activities, as the formation of retrospective reflection, the ability to reflect on current activities and to assess prospects for future activities. The diagnostic results are presented in Table 1.

Table – Levels of retrospective and situational reflection formation and students' abilities to assess future activity planning at the beginning of the experiment in the experimental and control groups

Level of formation	Retrospective reflection		Situational reflection		Ability to assess future activity planning	
	percentage of students, %	percentage of students, %	percentage of students, %	percentage of students, %	percentage of students, %	percentage of students, %
	EG	CG	EG	CG	EG	CG
High	36.8	25.0	39.5	30.0	21.1	15.0
Medium	50.0	55.0	55.3	52.5	28.9	32.5
Low	13.2	20.0	5.2	17.5	50.0	52.5

The result analysis suggests that the students' levels of retrospective and situational reflection are approximately in the same range: half of the students have an average level of its formation, so they are occasionally able to assess the results of solving a problem adequately depending on its complexity. While situational reflection is aimed at the self-control of human behavior in a current situation, the retrospective reflection is aimed at the analysis of the past actions and activities.

The results of the technique prove that the students of the control and experimental groups had special difficulty in planning their future work: 52.5 % of the students in the control group and 50% in the experimental group showed a low level of planning their future activity which indicates a low level of goal setting, difficulty in conforming their lives to certain principles (professional and educational), distinguishing subgoals, determining conditions and means of solving problems.

The hypothesis about the equivalence of experimental and control groups has been tested using χ^2 Pearson criterion and can be accepted with 5 % error probability, which suggests that at the initial stage of the experiment the results of the diagnostic work in the groups did not differ statistically.

At the stage of the formative experiment in the experimental group the authors' course "Interactive learning technologies in modern education" was implemented. The objectives of this course are to enrich and systematize students' knowledge in interactive learning, to acquire necessary reflective skills for interpersonal interaction in solving professional tasks, to form professional activity motives, important personal qualities and experience in future teachers' professional self-development. The curriculum of the course included the following subjects: "Interactive Learning Instructional Characteristics", "Interactive Learning Methods Diversity and their Characteristics", "Interactive Learning Tools", "Interactive Learning Technologies", "Interactive Learning Monitoring Features". When introducing a new material such teaching methods as problem lectures, visual aid lectures, press-conference lectures, lectures with pre-arranged mistakes were used. When consolidating, generalizing and revising a material such technologies as job tasks solution, project activity, case-study were used. While implementing the course all types of pedagogical cooperation, which form the basis of interactive learning were used: "teacher – student", "group of students – teacher", "group of students – student", "student – e-learning resource".

3. RESULTS

At the stage of generalization and analysis of experimental results, we carried out the monitoring of previously selected data aimed at identifying pedagogical conditions that determined the optimality of future teachers' reflexive competence formation in the process of interactive learning. Considering active nature of reflexive competences, during the pedagogical experiment in the process of interactive learning in the experimental group, alongside the traditional means of monitoring, we used such diagnostic tools as professional tasks in education; observing students in the process of role playing that simulate professional

situations; expert evaluation of educational projects of pedagogical topics, the analysis of the activity results (an essay, mental maps).

The analysis of retrospective reflection formation dynamics in the experimental and control groups shows that during the formative experiment the students in the experimental group experienced some positive changes – the percentage of students with a low level of retrospective reflection, who found it difficult to assess their activity results, declined significantly from 13.2 % at the beginning of the experiment to 2.6% at the end of it. Supervising students in solving educational and professional problems, doing educational projects confirm that students in the experimental group define prerequisites, motives and causes of the event more clearly; they assess gained experience and mistakes in solving educational problems. The dynamics indicators of the level of reflexive competence formation prove that students' collaborative activity in solving educational and professional tasks, self-esteem and cooperation situations while presenting project activity results, introduction of professional problem solving algorithm play a positive role in future teachers' retrospective reflection formation.

The most significant and positive changes were observed in the dynamics of the level of students' perspective reflection formation in the experimental group, which indicated successful formation of reflexive competences, defining the ability to set goals and plan professional activity. Future teachers' situational reflection has undergone significant changes. It is related to behavior self-control in actual situations of interaction, interpretation of its elements, analysis of its events, ability to correlate actions with situation and their coordination in accordance with changing conditions and state. The percentage of students with a high level of situational reflection increased by 31.6 %. The data received were confirmed in the process of observing students: the time for pondering over problem solving decreased, the rationale became more analytical; a significant number of students formed a tendency to self-reflection in certain communicative situations.

Similar changes occurred in communicative reflection which plays an important role in the interaction data evaluation and its valuation. The percentage of students with a high level of communicative reflection increased in the experimental work by 21.1 %. The analysis of the dynamics of formation of these types of reflection proves that interactive learning has a positive impact on future teachers' formation of goal setting and professional activity planning, ability to change their position in educational interaction, to assess their experience of cognitive and professional activity adequately, to use it in solving new educational and professional problems.

REFERENCE LIST

- Usheva T. F. Pedagogical conditions of formation of reflexive abilities of students in the educational process: abstract of a thesis. Novokuznetsk, 2010.
- Karpov A.V. (2003). Reflection as psychological attribute and its diagnostic technique *Psychological Journal*. 24. (5). 45–57.
- Kondratenko I.B. (2014). Technology of interactive learning as a factor in the training of future teachers to professional activity *Humanities, Social-economic and Social Science*. http://www.online-science.ru/m/products/pedagogical_science/gid1710/pg0/