

Formation of the Monitoring Competence of the Teacher in a Comprehensive Institution

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ABSTRACT

The relevance of the problem in question is stipulated by the increasing role of the teacher and his professional competence in the successful solution of innovative social pedagogical problems of the new educational paradigm; by the more significant role of the teacher's monitoring activity in the improvement of quality of general education. It is as well determined by the fulfilled conscious need of the teacher to develop the monitoring competence as a component of his pedagogical mastery. The aim of the article is formulation, theoretical justification and implementation of the model of the teacher's monitoring competence and pedagogical conditions of its efficient realization in a comprehensive institution. The main approaches of the research are personal active, competence-based and monitoring with the primary cognition principle being dialectical. The mentioned approaches crucially reflect the peculiarities of scientific cognition as well as of the process of the teacher's monitoring competence. The research found structural functional components of the monitoring competence of the teacher (motivational, cognitive, projective), which reflect its specific systemic characteristics: the typology of teacher basing on his involvement in the monitoring activities has been determined (the main determined types are reproductive, constructive, innovative, creative); the model of the monitoring competence of the teacher in a comprehensive institution has been designed and explained. The model comprises a set of interconnected stages: orientation-motivational, contensive, operational active, result evaluating.

KEYWORDS

Teacher, monitoring competence, personal activity approach, monitoring approach

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Introduction

Urgency of the problem

Among the primary objectives aiming at the strengthening of the role of basic education in the social economic development of Russia it is declared that the content of education, technological base and methods of quality evaluation

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be reconciled with the challenges of the society of the XXIst century. Due to this fact, huge activity on the introduction of federal state educational standards has been developing. The success of this work will depend on the professional competence of the teacher, on his capacity to solve innovative pedagogical problems not only basing on his experience and professional intuition, but on the systemic monitoring of the current state of the educational process and its results, on his own personal and professional development, his abilities of planning and predicting the implications of his activity.

The success of such activity is determined mainly by the special property of the teacher, which can be defined as the monitoring competence; this competence is a valuable and relatively independent subsystem in the structure of the professional competence of the teacher. In this particular context monitoring competence comprises informational, diagnostic, analytical, reflexive, projective and other types of skills and knowledge, orientation at their complex realization, as well as professionally essential personal qualities which represent such internal conditions that transform all external characteristics and requirements into the monitoring competence of the teacher.

In this quality monitoring competence serves as the condition and the implication of the development of the educator's professional competence. It stipulates the interconnection between the levels of the teacher's monitoring competence and the efficiency of his monitoring activity, the whole educational process, the prospects of professional development and self-improvement. It is the teacher's monitoring competence that should be considered the main indicator of his professional level.

Alongside the above mentioned the practice of the teacher's professional activity and the results of empirical research show that the levels of the teacher's monitoring competence do not meet the demands of modern general education.

In this research we interpret the monitoring activity as the whole-valuable integrated quality, offering the model of its formation. Different aspects of the monitoring competence have been considered in the works of (Koshkin et al., 2015; Khurmatullina & Yachina, 2015; Miller et al., 2015; Denne et al., 2015; Feyereislova & Nathan, 2014).

The monitoring functions of the university lecturers have been studied by the Ukrainian scholars (Yagupov, Mizinchuk & Krishtal, 2013); professional competence as the indicator of education quality has been explored in (Yachina, Moukhutdinova & Khazieva, 2009).

Materials and Methods

The following research methods have been used:

-theoretical: analysis of pedagogical, philosophical, psychological and sociological sources on the topic in question; comparative analysis of the results of different studies; systemic structural analysis of the monitoring competence of the teacher;

-empirical: experiment; questionnaires and tests; browsing; interviewing; expert evaluation; methods of mathematical statistics and computer data processing.

Experimental work was conducted in comprehensive schools of the Tatarstan Republic. 104 teachers participated only in the first socio-pedagogical survey. That is why the first group was considered experimental (60 persons) while the second (44 persons) was control group.

Materials and Methods

During the study the following methods were used

- theoretical methods: system analysis, synthesis, generalization, theoretical analysis of philosophical, pedagogical, psychological, scientific, methodical and technical literature on the research problem;
- empirical methods: observation, conversations, monitoring, questioning, psychological testing, experiment.

Experimental work took place in several stages.

The aim of ascertaining stage of the experiment (2013-2014) was to determine the structure and efficiency of the traditional managerial system of students' vocational training.

At the forming stage (2014-2015) an analysis of the regional labor market was done, the legal framework for the cooperation of college with the social partners was developed; forms of social partnership of college were defined, employers were involved in the organization of the managerial and the educational processes, the development of qualifications' requirements for verification procedures of professional knowledge and skills. The purpose of the control stage (2015-2016) was to check the efficiency of the developed pedagogical conditions for production and pedagogical management of students' vocational training.

The aim of the experimental work was to determine the degree of efficiency of the teacher monitoring competence formation model and the pedagogical conditions of its realization in the process of professional activity. To achieve this aim, proper methods were to be used; they allowed monitoring the experimental process and its results, the dynamics of the development of the monitoring competence.

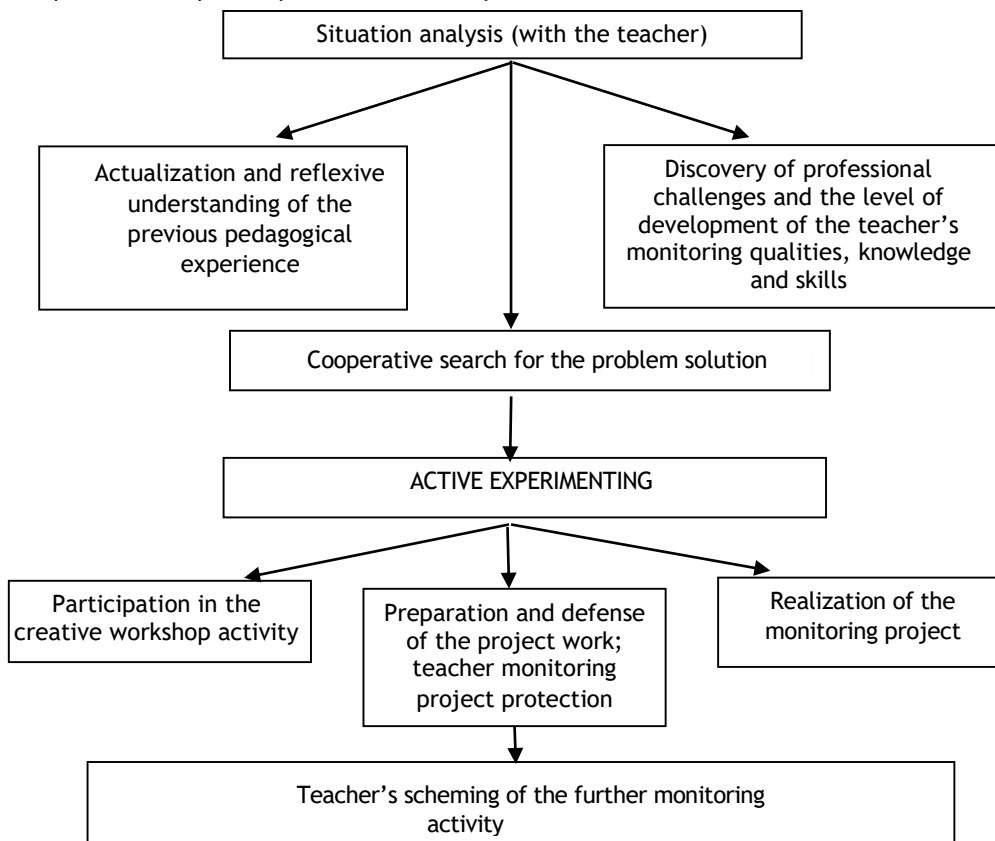
As the result, we have created the method to assess the efficiency of the formation of the teacher's monitoring competence in the process of professional activity, which includes the systemic evaluation of the dynamics of the three-component monitoring competence (namely personal motivational, cognitive and projecting components).

The process of evaluation may be illustrated by the following diagram (table 2). The meanings of the denotations: MC – monitoring competence; PMC, CC, PC – personal motivational component, cognitive component and projecting component respectively. The systemic evaluation of the teacher's monitoring competence is based on the following assessing methods and forms:

- browsing the teachers during the experiment, activity games, creative workshop activities, task accomplishment, discussions on innovations, pair work, etc.;
- analysis of the teachers' interests at the classes and creative workshops;
- registering the competences the teachers used while completing the tasks;

- filling in the protocols of the browsing procedure with the results in points (“variables”);
- analysis of the teachers’ commitment (the amount of asked questions, the frequency of presentations inside the microgroups and the group itself);
- summing up the results, analysis of the main difficulties and the reasons;
- establishing work perspectives for every teacher basing on cooperation and joint creative activity (projecting individual plans).

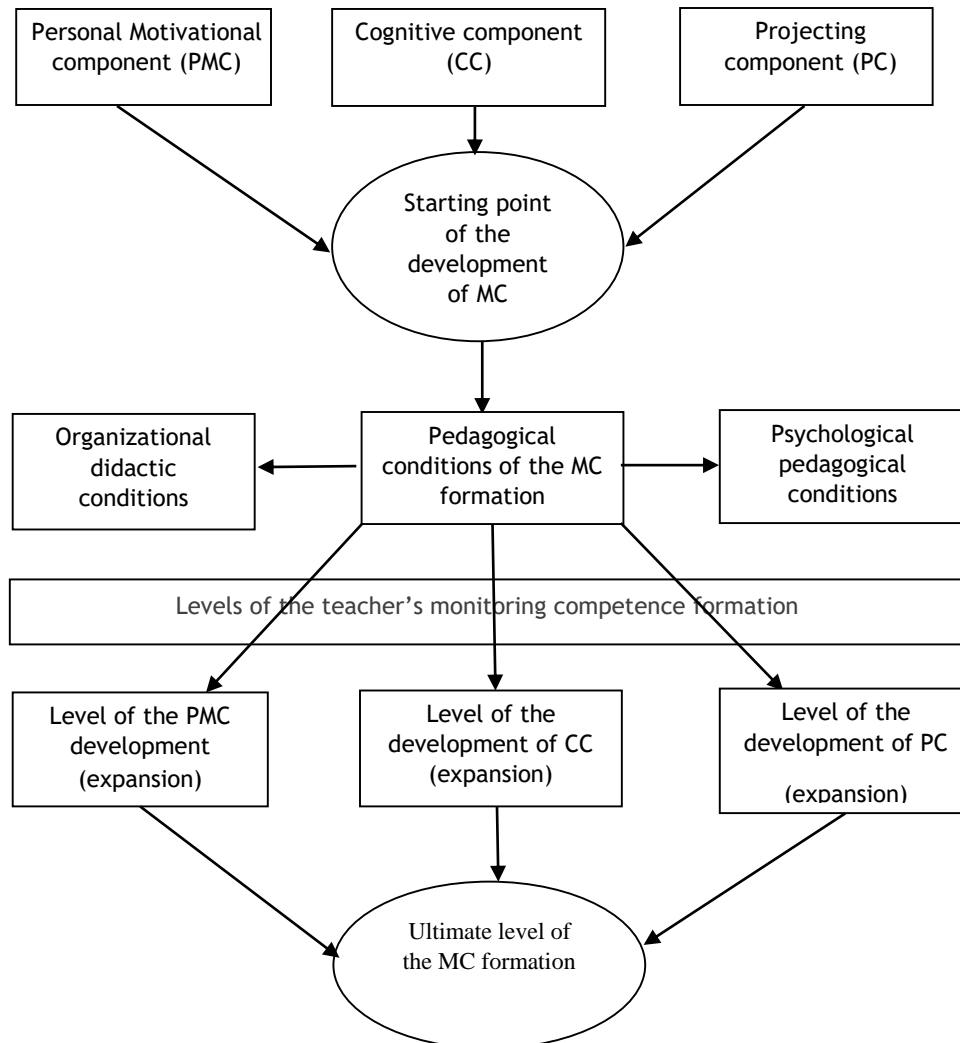
Table 1. Overall diagram of the experiment on the formation of the teacher’s monitoring competence as a part of professional activity



All the gained materials were systemized and analyzed by the organizers (on different levels), which was sufficient to make up a conclusion on the qualities of the teacher as a professional, his needs and challenges, peculiarities and opportunities of the further personal professional growth. These data may stimulate to build up tactics and strategy of the pedagogical interaction: open dialog, cooperation, joint creativity, which establishes the conditions for comfortable mutual understanding, trust and the formation of the adequate professional communication style; these factors are the main constituents of the psychological pedagogical as well as methodical basis of the criterion-oriented formation of the teacher’s monitoring competence in the conditions of professional interaction.

In this respect it is of paramount importance to develop the system of indicators which structurally and meaningfully reflect the whole monitoring competence and all its components. In our research the following set of indicators have been used.

Table 2. Process of the evaluation of the teacher's monitoring competence (MC) efficiency



Personal motivational component:

1. Awareness of the necessity to form the monitoring competence as a component of the modern teacher's mastership.
2. Teacher's complacency with his monitoring activity (worrying about the mismatch between the level of the monitoring competence and certain norms).
3. Desire to self-improve in the sphere of the monitoring competence.
4. Understanding of the value of the monitoring activity in the pedagogical practice.

Integrated (generalizing) indicator of the motivational component formation is the motivational (psychological pedagogical) readiness of the teacher for the monitoring activity.

Cognitive (theoretical educational) component comprises:

1. A good command of methods of organizing and conducting pedagogical monitoring.
2. The idea about common goals of the pedagogical monitoring and the objectives of every stage of its realization.
3. The idea about monitoring program and its main methods.
4. A good command of the main methods and vehicles of the pedagogical monitoring objectives.
5. Apprehension of what can be improved in one's professional activity basing on the results of the monitoring.

Integrated indicator of this component is the theoretical readiness of the teacher for the monitoring activity.

Projecting component:

1. Informational skills (the skill of perceiving, collecting and selecting information; the ability to systemize, analyze, structure and sum up information);
2. Diagnostic skills (the skill of conducting diagnostics, of analyzing the results, etc.);
3. Investigation skills (the skill of pointing out a problem, of formulating goals and objectives, object and subject of the research, its hypothesis, the capacity to plan research methods, analyze results, make conclusions, etc);
4. Reflexive analytical skills (systemizing, generalizing, analysis, synthesis, classifying, comparison, reasoning, finding universal and unique features, goal-setting, reflexing);
5. Forecasting skills (prediction and planning activities).

Integrated indicator of this component is the projective readiness of the teacher for the monitoring activity.

Operational estimation of the mentioned indicators of the teacher's monitoring competence formation was conducted on the basis of the problem approach (problematization of different aspects of the monitoring competence) via the criterial indicator "professional monitoring challenge". It creates several research opportunities:

- to determine "the field" of the monitoring challenges (problems) which arise in the practical monitoring activity;
- to determine the level of the monitoring challenges in all the aspects (indicators) of the monitoring competence and in general;
- to systemize the challenges according to the concrete components of the monitoring competence;
- basing on the level of the monitoring challenges we are able to determine the level of development of the components and the overall level of the formation of the monitoring competence, which is estimated as the reciprocal value of the degree of challenge.

So, the estimation of the level of the teacher's monitoring competence formation stipulated the usage of the following operational conceptual framework:

- "professional monitoring challenges" – certain aspects of the teacher's monitoring competence which on the one hand cause dissatisfaction and on the other hand the necessity to be settled. They are defined by the scale of the problem (relevance, intensity): significant difficulty – 3 points, medium difficulty – 2 points, insignificant – 1 point, no difficulties – 0;
- "problem cycles" – complex of the monitoring challenges in the concrete aspects (components) of the monitoring competence;
- "level of formedness of the monitoring competence" is either an individual or group quotient expressed by figures. It is determined by the teacher's evaluation of different aspects of the monitoring competence and its components as well as by the expert's (educator, advanced training supervisor, science advisor, etc.) evaluation. In terms of quantity, it is the reciprocal value of the degree of challenge. According to this, high level of the monitoring competence (more than 2,5 points), medium level (acceptable) of the monitoring competence (2,5-1,5 points), and low level (critical) of the monitoring competence (lower than 1,5 points) can be pointed out.

The peculiarity of this method is that we use a tentative situation which implies not so psychologically stressful and not so challenging (for the teachers-respondents) procedure of the evaluation of the monitoring competence via the evaluation of certain difficulties, which has been operationally reflected in the attached monitoring map.

Besides this, the advantage of the given method of evaluation is that it is reflexive, i.e. it appears in the professional teacher's activity; on the other hand it creates personal basis for the successful managing of the monitoring activity.

The base of such an evaluation system is the fact that the pedagogical diagnosis becomes relevant only when it is felt by the person himself. The teacher is at the same time the subject of diagnosis and the subject of giving the diagnosis; the main active participant. Only in this case does he have a desire and disposition for the further professional development and self-improvement. In this respect, evaluative diagnosis should reflect the personal teacher's sense of the perception of information and the reflexing of his progress in the process of the formation of the monitoring competence.

Our experience of using this method reveals close connection between self-evaluation of the teachers and expert evaluation (difference in evaluations is not more than 7%), which we consider to be the proof of objectivity of the evaluation system which we suggest.

Results

One of the results of the experiment on the formation of the monitoring competence was the discovered positive tendency indicating the increase in the teacher's monitoring competence in the process of professional activity (see tables 3, 4, 5).

One of the criterial indicators of the monitoring competence increase was the one which reflected the dynamics of the teachers' number with the most manifested characteristics of the monitoring activity (knowledge, skills, enthusiasm) of the experimental group. As the result we obtained the following data (see Table 3).

Table 3. Dynamics of the number of teachers who possess a good command of the monitoring competence throughout the experiment (the data are rounded off to the whole number in %; N - 60 persons)

	Before the experiment	After the experiment
Teachers with less than 10 years of work experience	6 pers. (10%)	16 pers. (27%)
Teachers with more than 10 years of work experience	4 pers. (7%)	10 pers. (17%)
Total (on average)	10 pers. (17%)	26 pers. (44%)

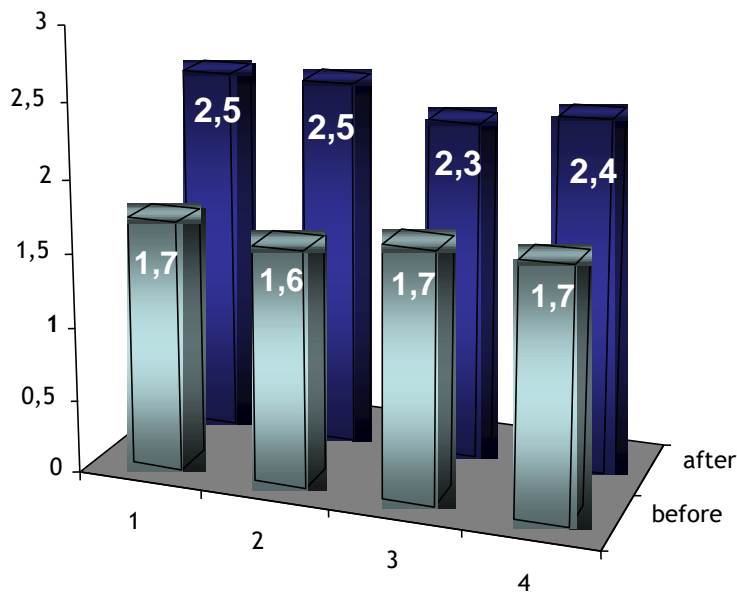
The observed positive dynamics are supported by the analysis of the development of the teachers' monitoring competence by means of all the indicators and components which constitute it (Table 4 and Figure 1).

Table 4. Dynamics of the indicators of the teachers' monitoring competence formation in the experiment mode (3 points maximum)

Indicators of the research competence	Experiment outset	Experiment outcome
Motivational component:		
1. Understanding of the necessity of the formation of the monitoring competence as a component of the modern teacher's mastership	1,8	2,7
2. Satisfaction with one's own monitoring activity (worrying about the mismatch between the level of the monitoring competence and certain norms)	1,5	2,2
3. The need of self-improvement in the sphere of the monitoring competence	1,7	2,4
4. Understanding of the value of the monitoring competence in the pedagogical practice	1,9	2,6
Level of the motivational readiness for the monitoring activity	1,7	2,5
Cognitive component:		
5. Having a good command of methods and methodology of the organization and conducting of the pedagogical monitoring	1,7	2,5
6. Having an idea of the main aims of the pedagogical monitoring and the objectives of each stage of its realization	1,8	2,4
7. Having an idea of the monitoring program, of the ways of attaining its main goal	1,5	2,6
8. Having a good command of vehicles and tips of reaching the pedagogical monitoring objectives	1,6	2,5
9. Having an idea of what can be improved in the professional activity (basing on the monitoring results) and how it can be improved	1,5	2,4
Level of the theoretical readiness of the teacher for the monitoring activity	1,6	2,5
Projective component:		
10. Informational skills (the skill of perceiving, collecting and selecting information; the ability to systemize, analyze, structure and sum up information, etc.)	2,1	2,7

Table 4. Continued.

Indicators of the research competence	Experiment outset	Experiment outcome
11. Diagnostic skills (the skill of conducting diagnostics, of analyzing the results, etc.)	1,9	2,4
12. Investigation skills (the skill of pointing out a problem, of formulating goals and objectives, object and subject of the research, its hypothesis, the capacity to plan research methods, analyze results, make conclusions, etc.)	1,5	2,1
13. Reflexive analytical skills (systemizing, generalizing, analysis, synthesis, classifying, comparison, reasoning, finding universal and unique features, goal-setting, reflexion)	1,5	2,0
14. Forecasting skills (prediction and planning activities)	1,6	2,2
Level of the projective readiness of the teacher for the monitoring activity	1,7	2,3
Level of the formation of the monitoring activity	1,7	2,4



1 - motivational component; 2 - cognitive component; 3 - projective component;
4 - on average.

Figure 1. Diagram of the level dynamics of the components of the teacher's monitoring competence obtained in the experiment

The results of the chart (monitoring map) reflect the logic of the monitoring competence formation, its challenges and controversies. To begin with, we have registered a rather high level of the development of the motivational component in the process of the monitoring competence formation, including the indicator

"awareness of the necessity of the formation of the monitoring competence as a component of the modern teacher's mastership" (1,8-2,7 points).

Meanwhile, among the indicators of the motivational readiness for the monitoring activity the most prominent is the indicator "satisfaction with the monitoring activity (worrying about the mismatch between the level of the monitoring competence and certain norms)", which has a relatively low (comparing to other indicators) value (2,2 points). In our opinion, this is the reflection of the fact that the participants of the experiment are aware of the degree of personal and professional responsibility for the quality of their monitoring activity, fully understanding the necessity of its further development.

As far as the cognitive component is concerned, we can observe rather steady and high dynamics of all the indicators of the formation of the monitoring competence. On average, growth is estimated at 0,9 points, starting from 1,5 points before the experiment and finishing at 2,6 points after the experiment. It is worth mentioning that lesser growth of indicators has been noticed in the projective component of the monitoring competence (from 1,7 to 2,3 points), which is well predicted though. Thanks to their nature, motivational and cognitive components are more prone to corrective measures: they are easily formed, taught with the possibility of self-studying. Comparing to these two, the projective component is much more complicated; it does not only imply the perception of new material, but also time and effort-consuming work of a teacher and school administration on the formation of vital professional skills, especially research and reflexive analytical.

However, we may state the fact that the dynamics of the level of the monitoring competence formation among the participants of the experiment amounts to the range of 1,7-2,4 points, which illustrates rather significant positive shift in the structure and content of the monitoring competence. It reveals good progress of the process and the pedagogical conditions of its realization.

Personal orientation at the formation of the monitoring competence, which was registered in the behavior of many teachers in the course of experiment, determination and responsibility, enthusiasm and good self-discipline, readiness for the acquisition and transmission of life experience have been eventually reflected in the increase in the teachers' monitoring activities.

We should as well pay attention to the following fact. Comparative analysis of the level of the monitoring competence among the teachers of the experimental and control groups has revealed a significant difference in their monitoring levels. (see table 5 and figure 2).

We consider the comparative results represented in chart 10 to be another confirmation of the fact that those teachers who had taken part in the experiment and had gone through all the stages of the formation of the monitoring competence finally managed to reach rather high levels of the monitoring competence, unlike their colleagues who had not participated in the experiment.

Table 5. Comparative data of the current level of the monitoring competence among the teachers of the experimental and control groups (max. 3 points)

Components of the monitoring competence	Experimental group	Control group
Personal motivational	2,5	1,6
Cognitive	2,5	1,8
Projective	2,3	1,6
On average:	2,4	1,7

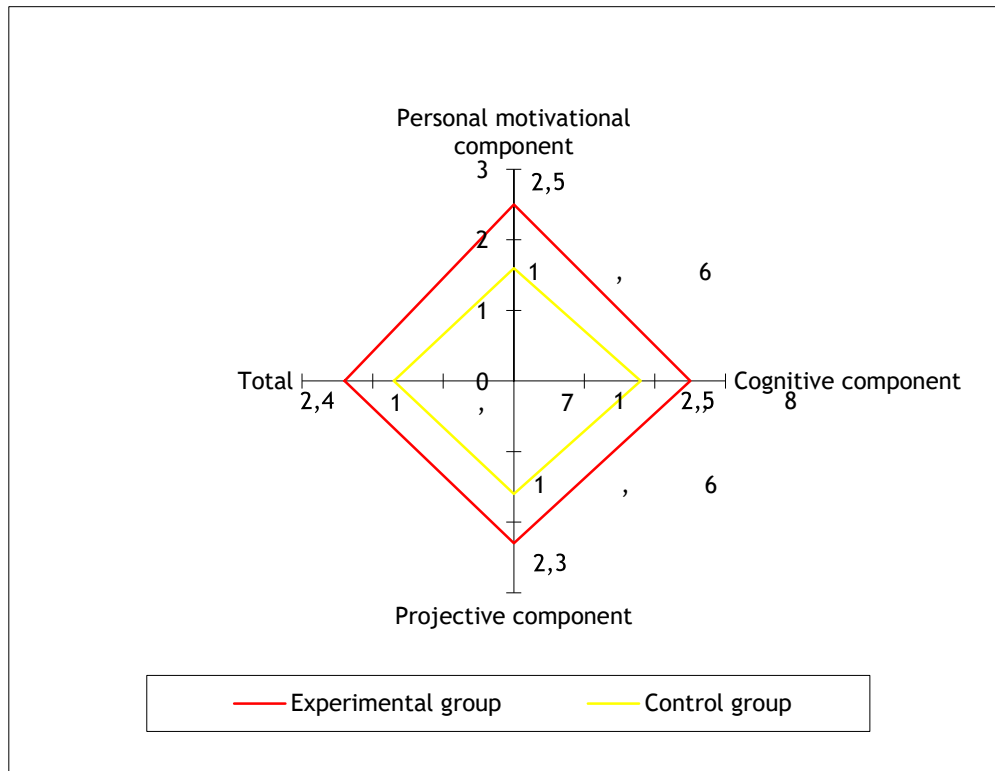


Figure 2. Graphical depiction of the formation of the teacher's monitoring competence in the experimental and control groups (max. 3 points)

Additional analysis of the efficiency of experimental work basing on the survey conducted among the school teachers served only as confirmation of our claim, showing the credibility of the suggested hypothesis (see Table 5).

Answering the questions of the survey, the teachers expressed their opinions concerning the influence of different aspects of the experiment organization on the satisfaction with the progress of the process of the monitoring competence formation and its results as well as with their personal and professional self-development in general.

Table 5. Teachers' evaluation of the efficiency of different aspects of the monitoring competence formation in the course of experiment (percentage out of the number of participants)

Efficiency indicators	Completely or mainly	Partly
Encouraged professional development:		
In expanding and deepening of the theoretical foundations of the monitoring competence	78	22
In upgrading the technology of the pedagogical monitoring	81	19
In perfecting the skills of the monitoring activity	75	25
Resulting motivation:		
Clear striving to develop in the sphere of the pedagogical monitoring	80	20
Bigger determination and better reasoning in actions	88	12
Belief in success, optimism, emotional balance	76	24
Total:	79	21

The analysis of the chart data shows (rounded to a whole number) that during the experiment the biggest part of the teachers (79%) experienced complete or major transformational changes in their professional monitoring activity.

The conducted experiment connected with the formation of the monitoring competence of the teacher has revealed that the success of this process depends on a number of objective and subjective factors which include:

- presence of the teacher's motivation for self-improvement;
- development of the encouraging pedagogical background at school. In this interaction environment the teacher will feel personally involved in the atmosphere of the class, in the pedagogically created situations, will be aware of the value of the gained experience;
- realization of each level reflexing of the formation process of the monitoring competence in the educational and professional activity, which will develop the teachers' motivation to acquire instrumental (criterial) experience;
- diagnosing the results of the teacher's educational and professional activity as "the dynamic changes" instead of "the evaluation of the static situation".

Recapitulating, we may claim that the results of the experimental work have confirmed the research hypothesis about the positive impact of the step-by-step model of the formation of the teacher's monitoring competence and the pedagogical conditions of its realization on the process of the formation of the teacher's monitoring competence at school. The formation of the complex of pedagogical (psychological pedagogical and organizational didactic) conditions has increased the general level of the teachers' monitoring competence and their preparedness for the monitoring activity.

Discussions

In modern pedagogical science the problem of the professional competence of the teacher as a subject of professional activity is studied in the numerous works of Russian and foreign scholars, such as (Abdoulkhanova-Slavskaya, 1991; Ananiev, 1999; Babanskiy, 1982; Makhmutov, Ibragimov & Choshanov,

1993; Slastyonin, 2004; Khutorskoi, 2002) and many others. The subject of their studies is not only the teacher's professional competence, but also the separate competences which reflect polyfunctional characteristics of the professional activity.

The specialists point out such competences as objective, investigating, operational pedagogical, reflexive analytical, creative, qualimetric, strategic, etc. It is underlined that as far as the competence approach is concerned, the teacher should know what general, objective, primary competences and at what stage are formed in the process of the acquisition of his subject; he should also possess the skills to form these competences.

The issues of the development of professionally important and personal qualities as the basis of the professional competence are studied in the works of (Belozertsev, 1992; Kuzmina, 1993; Orlova & Lebegeva 2000) and others.

The role of the pedagogical creativity in the formation of the professional competence is referred to in the works of (Zmeyev, 2012; Andreyev, 2000; Gabdoullin, 1990; Zagvyazinskiy, 1981) the analysis of psychological foundations of the professional activity of the teacher and his competences is studied in (Vygotskiy & Davydov, 1982; Davydov, 1996; Leontiev, 1996; Markova, 1999).

The analysis of the scientific research works and psychological pedagogical sources proves sufficient to say that modern pedagogical science contains a considerable theoretical base with the ideas, theses, approaches concerning projecting the professional competence of the teacher as the subject of the professional activity. However there have been no special investigations of the issues of the teacher's monitoring competence formation in the process of his professional activity. The concept of the teacher's monitoring competence is not clearly defined.

It is explained by the insufficient theoretical methodological foundations of the formation of the teacher's monitoring competence and the characteristic technology of the given process. Apart from that, still unexplored are the pedagogical conditions of the formation of the monitoring competence in the process of the teacher's professional activity.

Conclusion

During the theoretical experimental development and validation of the teacher's monitoring competence model we came to the conclusion that the monitoring competence, being realized as integrated aggregate of characteristic motives, knowledges and skills, constitutes a major factor of the growth of the teacher's professional potential and his satisfaction with his professional activity as a whole and monitoring activity in particular.

The main constituents of this activity are the following:

- professional interest of the teacher in the monitoring activity, theoretical knowledge;
- training of the teacher and his self-education in the acquisition of different kinds of the monitoring activity via lectures, seminars, in the course of business and role-plays;
- working out one's behavior in the problem situations;
- exploring the existing pedagogical background and readjustment of one's own professional experience in accordance with these data;

The designed model of the formation of the teacher's monitoring competence is aimed at:

- providing the best conditions for the development of the teachers' monitoring competence and personal as well as professional qualities connected with it;
- motivating teachers for constant improvement of the monitoring activity;
- forming the teachers' necessity in continual self-education, self-improvement and upgrading of qualifications;
- creating the conditions for the profound realization of the creative potential of the teachers.

These aims are attained in the course of the realization of the pedagogical conditions (psychological pedagogical, organizational didactic) the basis of which is the usage of activity methods and innovative technologies of the monitoring competence formation in the professional activity.

This research is by no means complete due to the fact that the changes occurring in the education system the functions of monitoring are gradually expanding thus tightening the demands for the development of the monitoring competence of the teacher.

Recommendations

The materials, main claims and results of this study may be used in the course of the development of educational programs, seminars, practical classes, aimed at the formation of monitoring knowledge's, skills and proper qualities of the teacher as well as in the process of training of a future educator.

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Disclosure statement

No potential conflict of interest was reported by the authors.

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