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Monitoring of the Educational Process During the Pedagogical Practical Training in School

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ABSTRACT

The purpose of the study is to analyze the features of monitoring the educational process during students' practical training at schools. We examined a number of methods and techniques of conducting monitoring of educational process as embodied by future teachers' practical training at secondary schools: continuous observation, method of test situations, explication, surveys, analysis of results of learners' educational activity and testing of students (n=500). The monitoring of educational process during school-based practical training is considered from two perspectives: from the university-staff perspective and from the perspective of developing students' skills of implementing such monitoring. The submissions can be useful for perfecting the content of education, evaluating the effectiveness of educational technologies being measured and identification of problems in the educational process as well as ways to resolve them.

KEYWORDS
Managing educational process, educational monitoring, educational standards, pedagogical practical training, diagnostics of a schoolchild's personal development

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Introduction

The relevance of the issue of monitoring is associated with the necessity of establishing the quality of educational services on the basis of approved state standards (Yelistratova, 2015; Yepaneshnikov, 2016; Kara & Skornichenko, 2012). The diagnostics of quality is a compulsory component of any education system (Mayorov, 2005).

Educational monitoring is a pedagogical and managerial category, since it does not mimic the general provisions of the information theory, but renders them into the language of pedagogic science, psychology and management

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(Shilibekova, 2011). As a comprehensive subject, educational monitoring can be considered from the perspective of a system approach. Knowledge is imparted by teachers and mastered by pupils within the framework of interaction between subjects of education, and within the same framework in which educational monitoring is realized.

Monitoring represents a whole system, fulfilling a number of functions. The aspects of monitoring which distinguish it from similar pedagogical and psychological processes are continuity of data collection, diagnostic character of its processes; informative character; scientific character of the applied criteria and conclusions; feedback after correction of the process screened (Gorb, 2003; Kovalenko, 2012; Shilibekova, 2011).

The following can serve as objects of monitoring at schools: the educational process (Shatalov, 2008; Coates, 2010); academic progress of pupils, their learning and vocational-education activities (Lenske, 2016); professional activity of pedagogues and their development (Buldygina, 2007); formation of a teaching collective (Turgunbayeva & Tikhomirova, 2006).

Therefore, modern theoretical and applied sciences face the task of creating a system of obtainment of objective information about the results of training in conformity with educational standards, including an establishment of criteria, procedures and techniques of assessment, organization of pedagogical monitoring and its use as an integral part of managing the quality of education.

Literature Review

The problem of monitoring of the educational process is reflected in the works of E. Levina (2016), V. Nikolaenko, E. Grakhova & T. Rakhimov (2016), V. Vlasova & G. Kirilova (2012) and others.

At the same time, the issues of perfecting the educational process at institutions of general education with the use of pedagogical monitoring require further study. A literature review revealed a number of discrepancies between the system of theoretical knowledge in the field of designing pedagogical monitoring and the inadequacy of its implementation in the educational process at school, as well as the conventional system of pedagogical monitoring which involves screening the objects of the educational process and the need for comprehensive monitoring faced by the system of education.

Approaches are being elaborated to assess the attainment of education goals. Methodologists shed light on various aspects of pedagogical monitoring: theoretical underpinning, best practices of its application in the system of education and historical aspect of its genesis (Scheerens, 2003; Mayorov, 2005); practical implementation at educational institutions (Buldygina, 2007); computer-based system of assessing quality of the educational process (Borisenko & Volodina, 2015; Van Den Bogaart, 2016); development of the individuality of schoolchildren (Kozhanova, 2016); detailed description of the evaluation of educational projects (Spector & Yuen, 2016); development of input-output tests (Willms, 2003) and others.

Diagnostics of a schoolchild's personal development, and, if necessary, making adjustments to the educational process are the basic aim of monitoring. Thus, monitoring in the area of educational activity includes diagnostics and correction of personality development and of educational process. Special attention is paid to the screening of characteristics of a schoolchild's personal

development process, which are more informative in comparison with the assessment of the educational process (Lenske, 2016).

I. Yelistratova (2015) underlines that diagnostics is a starting phase on which the entire system of managing educational process is based. The monitoring of quality of education process should be accompanied by personified assessment activity in the domain of pedagogical measurements and in the field of psychophysiological characteristics of learners. In other words, the replacement of school controls with diagnostics is accounted for by the need of humanizing the educational process, the attitude to a pupil as to an active, conscious, equal participant in it and careful attention to the abilities and skills of children (Zeer, 2005).

In turn, A. Shatalov (2008) puts an emphasis on the fact that it is important to not only estimate the quality of education but to define the conditions on which its implementation. Estimation of quality is necessary for conceptualizing and formulating the directions, ways and goals of evolution of the educational space, creation of "ideal" educational models and making efficient managerial decisions in education. The very methodology of such estimation is valuable, since it offers an opportunity to reveal the conditions and rates of development as well as to establish the progress of this or that subject.

Scientific sources examine the system of organizing and conducting a monitoring of the educational process in various educational institutions. However, the issues of building the competencies of future teachers capable of fulfilling already existent programs of estimation and assessment of the education process at secondary schools have not been properly studied.

Pedagogical training as a subject of research has been comprehensively investigated by many scholars. Thus, the general foundations of the organization of pedagogical control at universities were highlighted by V. Gorb (2003) and H. Coates (2010). The methodological foundations of a comprehensive system of controlling the quality of specialists' training were developed by G. Cawelti (2000), I. Borisenko & D. Volodina (2015), A. Kara & N. Skornichenko (2012). The psychological foundations, functions and the role of knowledge assessment are presented in the work of J. Scheerens (2003).

It is pertinent to point out that the scholars examine the educational monitoring during the school-based training from two perspectives: the academic staff's perspective (Spector & Yuen, 2016; Buldygina, 2007; Turgunbayeva & Tikhomirova, 2006; A. Shatalov, 2008; Coates, 2010) and the perspective of developing the students' skills of conducting such monitoring at school (Lenske, 2016; Kozhanova, 2016).

Only a few studies propose an algorithm of pedagogical monitoring from the perspective of university staff. For example, the scheme suggested by S. Tazhbayeva, M. Assilkhanova, & L. Ilimkhanova (2014) embraces two periods: empirical-search and constructional-organizational. The goal of the first period is theoretical support, practical implementation and substantiation of the pedagogical significance or efficiency of principal monitoring procedures. The empirical-search component comprises the following stages: preparation, adaptation, initial estimation, technological stage, and final estimation. The goal of the second period is to ensure implementation of the pedagogically significant and effective monitoring procedures in the educational activities of the university.

Furthermore, T. Lovett, C. Clarke & A. Kilmurray (1983) emphasize that systems of assessing the quality of educational process are instable and uncertain as regards the choice, frequency and use of assessment. This must be taken into consideration in teacher training, including the tasks of developing research and analytical skills. According to V. Nikolaenko, E. Grakhova & T. Rakhimov (2016), teachers are the most qualified experts for assessing their students' achievements. It is never sensible to separate assessment from curriculum and teaching; the structure of assessment and subsequent validity of its results which affect the results of learning must prevail over the reservations about the psychometric precision, reliability, equality and value of standard tests.

In view of the problem of monitoring the pedagogical process at secondary schools, the task arises of training future teachers for the fulfillment of this function of pedagogical activity, which is observed by many researchers.

Aim of the Study

The aim of the research is to determine the advantages and disadvantages of the educational process monitoring during the practical training of students in schools (based on analysis of results of learners' educational activity and testing of students).

Research questions

What is the specificity of monitoring of the educational process during the pedagogical practical training in modern schools? How we can apply the pedagogical control algorithms and individually oriented educational strategies for improving the quality of educational monitoring?

Method

In order to conduct the empirical stage of our study, we formed two groups of students to undergo practical training at schools. Before this training, they were tested for the level of readiness to carry out educational monitoring, after which a workshop was held, during which they were informed about the fundamental principles of organizing the assessment of educational process. The first group (n=250) of test subjects was given a task of carry out such monitoring at the level of a form (class collective), whereas the other group (n=250) was given no such task.

The workshop devoted to the organization of the monitoring of educational process included an analysis of the methods of implementing it, ways to assess the development of schoolchildren's learning abilities and of criteria of assessing pedagogical innovations and best practices, as well as principles of character-building at schools.

Planning such research presupposes an analysis of theoretical sources which consider various aspects of the problem of monitoring of educational process. The results of such theoretical analysis give grounds to determine the stages and methods of empirical research. In view of this, the theoretical methods of our investigation presented in this paper, were the analysis of psychological-pedagogical literature, synthesis, generalization, comparison and collation, study and summarization of pedagogical experiences of secondary education institutions and universities. The empirical stage of research

presupposed the use of such methods as natural experiment and testing. By methods of pedagogical research we mean a sum-total of ways and methods of cognizing the objective laws of learning, upbringing and development.

We define analysis as breaking up a whole into elements and identifying the main characteristics and properties of a phenomenon. Research of the monitoring of educational process can be carried out on different levels: social-pedagogical, organizational-didactic, personal, and the level of activities. Taking into consideration the complexity of the subject of research, analysis as a method can be structural (identifying relations and interconnections), functional (revealing functional interdependencies), causal (ascertaining cause-and-effect links of phenomena).

Synthesis is the reverse side of analysis and implies reintegration of elements into a whole structure. Thanks to the methods of analysis and synthesis, a researcher carries out a search of scientific data, formulates the hypothesis and the problems of research, corrects the experiment, summarizes the research, makes conclusions and provides recommendations. Thus, the method of theoretical analysis and synthesis provides an opportunity to examine objects, phenomena and processes in their most complex combinations, to identify their most essential characteristics, links and relations, establish laws of their evolution.

Comparison as a method consists in defining similarities and differences between phenomena. This paper compares different levels of formation of a pedagogical phenomenon at different stages of monitoring with a view to establishing the effectiveness of using this or that educational innovation. The method of comparison foresees identification by the researcher of a basis for comparison, i.e. its criterion.

The study and generalization of pedagogical experience implies an organized cognitive activity aimed at establishing historical connections of upbringing and education, identification of the general and stable elements in various educational systems. This method facilitates an analysis of possible solutions to specific problems, and helps to draw informed conclusions about the expedience of these solutions under new conditions. Therefore this method is frequently described as a historical one.

Taking into consideration that the subject of this research is the future teachers' established readiness to plan and conduct the monitoring of educational process at a secondary school, the empirical stage consisted of establishing by the method of testing of the level of formation of such readiness before carrying out practical training and diagnostic tests after its completion. The author developed a 15-entry multiple-choice test. The questions concerned the general theories of organizing monitoring of educational systems as well as its methodological support. Moreover, we formed two experimental groups of students (n=500). Both groups underwent theoretical preparation for conducting monitoring at school. Only one of them was told to implement a specific methodology of monitoring, whereas the other one did not have that task. All the participants were tested again upon completion of their practical training.

Data, Analysis, and Results

A theoretical analysis of the problem suggests that the basic tasks of educational monitoring are:

- screening the difficulties of mastering new learning material;
- creating a real mechanism of educational process management;
- obtaining information about the development of means of learning and cognition;
- individualizing an educator's activity;
- detecting and registering unexpected deviations in the educational process.

In view of this, future teachers should develop their skills of monitoring the educational process at secondary schools during their practical training there. This fact accounts for the goal of our research, which is to carry out a theoretical analysis and empirical research of this problem.

These tasks are fulfilled by means of data collection and recording the status of current processes as well as by means of analysing obtained data and taking into account the results of the analysis in managerial decision-making and regulation of educational processes. Monitoring of learning motivation should be conducted within the framework of educational monitoring. The method of observation is applied for this purpose, in addition to special methods.

A substantial number of different means of secondary school monitoring exist. For the sake of simplicity let us consider them as an aggregate of the following groups of methods and techniques (Zeer, 2005).

1. Continuous observation is carried out with a view to screening changes in professional development under the influence of the educational process and identifying the essence of the observed phenomena. The quality of observation depends on the psychological competence of an educator and is characterized by subjectivity.

2. Method of test situations consists in creation of certain conditions in which every structural component of learning-cognitive activity is displayed distinctly. For this, clarification questions are asked, reflection of cognitive actions is encouraged, and assistance in learning is carefully measured out.

3. Explication is expansion of the content of learning-cognitive activity. This method offers an opportunity of diagnosing changes in a schoolchild's development and promptly correcting the process of education. It is achieved by asking clarification questions, giving assistance in the form of hints and joint activities, and pupil encouragement. Recording of characteristics is carried out by means of using observation in the simplest of cases, and data collection with the help of questionnaire forms, in which the observed learning-cognitive actions and qualities of schoolchildren are reflected.

4. Questionnaire methods help to obtain information about the development of subjects of the educational process based on the analysis of written or oral answers to routine questions. The questionnaire help determine the level of formation of the components of learning-cognitive activity of a schoolchild.

5. Analysis of the results of learning and cognition is conducted on the basis of analysing written answers, graphical material, technical products and creative works of pupils.

6. Testing is one of the methods of collecting data about the level of development of the educational process and the mental development of a

schoolchild. It is based on a standard which allows correlation and comparison of estimates obtained during testing.

An important part of educational monitoring is estimation of the level of learning-cognitive abilities of schoolchildren. In order to screen it, it is necessary to use fragments of intellectual tests, apply methods of test situations and observation of schoolchildren in the process of solving learning-cognitive problems.

The degree of expression of the educational process components screened in monitoring is reflected in a special registration form filled in by teachers upon completion of part of the curriculum, which unites several topics covered during classes. At the end of each class/term, the data of registration forms are reflected in the final individual graphs of pupils' learning progress.

Innovation in a specific professional activity has become a special subject of investigation, analysis and implementation. Innovations do not occur by themselves; they are the result of scientific investigations, the experience of individual experts and whole collectives. This process cannot be spontaneous; it requires management. The concept 'innovation' implies development, novelty and change. Innovation as a process presupposes introduction of novelty. At the same time, novelty cannot be seen as innovation unless its implementation leads to improvement of the results of an activity.

Pedagogical innovations are innovations in the area of pedagogical activity, based on the introduction of the achievements of science and pedagogical experience to the content and technologies of education and upbringing, which leads to an increase of the educational process effectiveness. The role of a school director, teachers and other educators as direct bearers of innovative ideas is substantially increased in the innovation processes. Fulfilment of all leading pedagogical functions rests upon the teacher, who has at his/her disposal a variety of educational and upbringing techniques. With introduction of modern ways of teaching, a teacher and educator should have the skills of counsellor, adviser and educator. This requires that, in addition to the knowledge of his/her subject, he/she should conversant in the new research in pedagogy and psychology, education and upbringing. A teacher's readiness for implementation of pedagogical innovations is formed on this basis.

Establishment of directions of innovation presupposes the use of certain indicators, which help to gauge the effectiveness of this or that innovation. Consequently, criteria should be established for defining innovation. Novelty, optimality, high efficiency, and possibility of use by many people are considered to be general criteria of innovation.

The main criteria of any innovation are its effectiveness, i.e. the possibility of obtainment of higher results of a pedagogical process in comparison with similar methods, forms etc. Moreover, these results should not be associated with the de-energizing of teacher or pupil. Thus, effectiveness is in direct relation to the criteria of optimality. Different educators working with different intensities can achieve similar results of pupils' input. Achievement of high results at the smallest physical, intellectual and time costs to the optimality of pedagogical innovation.

Novelty, which is equally related to both estimation of scientific research and advanced pedagogical experience, is the most important criterion of

innovation. Several levels of novelty exist, such as absolute, 'local'-absolute, conditional and subjective, depending on the degree of advertising and area of application. Novelty is a relative notion. It is very important for an educator desiring to join the innovation process to be able to establish the novelty in any given object. In view of this, it is necessary to involve teachers in innovation processes on a voluntary basis, taking into account their individual psychological characteristics.

Stability of results of innovation practice means repeated obtainment of positive results in the activity of a teacher. The reproducibility of measurements and observations as well as the established character of the results and lack of ambiguity of their understanding are the necessary indicators of stability of innovation.

Possibility of creative use of the innovation on a massive scale is also one of the criteria of pedagogical innovations. If a teaching idea or technology stays within the limits of narrow, limited application, due to its specifics, its level of complexity or the specificity of a teacher's activity, it cannot be evaluated as innovation. Sometimes an innovation can be used by individual teachers or other educators, but fails to be recommended for mass implementation after approbation and objective estimation.

Knowledge of the above criteria and a teacher's ability to use them in the assessment of pedagogical innovation are at the core of pedagogical creativity. Moreover, it is necessary to subject an innovation to professional expertise and approbation. Implementation of teaching innovations must be carefully planned in organizational, technical, personal and psychological terms.

The modern secondary school has rich pedagogical experience, which must be tapped in specific pedagogical activities. However, it often remains untapped as the majority of teachers and managers often remain passive, and the skills and abilities in selecting and analysing innovations are absent. In reality, teachers often do not think about the necessity and appropriateness of analysing their own pedagogical experience and the experience of their colleagues.

A teacher's attitude plays an important role in the creation and transfer of experience, so it is important to take into account the subjective factors in the analysis and dissemination of specific information, and forecast variants of its application by teaching collectives. In the pedagogical experience, objectively valuable and individual experiences are present like nowhere else, but not everything deeply individual in the pedagogical activity can become common practice. The rest is what makes the area of unique and original in the personality. Extensive pedagogical experience, formed on the basis of mass experience, represents a level subjective pedagogical proficiency (Nikolaenko, Grakhova & Rakhimov, 2016).

It is acceptable to distinguish:

- advanced innovation experience, which is created empirically or on the basis of an educator's scientific research;

- advanced reproductive experience, provided there is an element of innovation; such experience is formed on the basis of practice, when an educator creatively alters the accepted scientific-methodological routines etc.

One of the most important directions of innovation activity at school, and a means of formation of extensive pedagogical experience is implementation of the

results of psychological-pedagogic research in the practical pedagogical activity. The results of pedagogical and psychological research of school workers often remain unknown because of poor dissemination of information. Thus, it is necessary to provide specially organized further training for pedagogues on the basis of scientific recommendations on the part of specialists. It is appropriate to set up special groups of teachers who would study, implement and disseminate innovative pedagogical experience.

We examine one of the most important elements of secondary school activity as a center of education is the unity of educational efforts of school, the family and the public. This work has its specifics which are manifested in the content, methods and forms of activity. They are based on special preparedness of teaching staff for organization of the teaching process, the knowledge of its objective laws, a clear vision of schools' social function under modern conditions; on the understanding of specifics and trends of development of modern family; on a teacher's readiness for communication with parents and the general public in terms of educating the young.

It is widely documented that school expands and develops the educative possibilities of family, exerting pedagogical influence and providing family with practical help in a schoolchild's upbringing. It organizes and governs the educative activity of public and other out-of-school organizations and coordinates their efforts (Shatalov, 2008). The patterns of work of a school principal and a form teacher are established over many years by means of selection of the most rational forms and methods. This system must respond to a range of requirements, providing for the success of joint educative activity.

1. Purposefulness of the activity of a pedagogical collective. It does not necessarily imply daily contact with parents, but teaching staff can solve specific educational problems during teacher-parent meetings or conversations with specific parents.

2. Continuing education and training and enhancement of pedagogical culture of teachers. It is facilitated by setting up a circle of form teachers, organization of institutional workshops Family Pedagogue, Improvement of Family Upbringing etc. It is necessary to take into account the peculiarities of neighbourhoods and villages, detect non-official local teenager groups, keep a record of difficult families and neglected children; tap on the positive experience of family upbringing and advanced pedagogical experience; carry out pedagogical analysis of the parents' education efforts and determine their effectiveness.

3. Development of standard requirements of teaching staff with regard to the work of form teacher and a teacher's communication with parents. The requirements must be substantiated, tactical and rightful. If the requirements are far-fetched, this may cause a conflict with parents.

4. Establishment of an association of parents, which could promote advanced efforts in the joint educative activity of school, family and public.

During joint educative activity, school must ensure observance of the following principles:

1. Activities and measures, directed at strengthening and increasing parents' authority must be at the core of the schools' and form teachers' work with families and public. A lecturing and patronizing tone is unacceptable in a

form teacher, as it can cause offence, irritation and discomfort. Sentences starting with 'you must' or 'you are obliged to' neutralize any advice provided. Parents frequently know their duties, but do not always succeed in fulfilling them. It is important for them to know what to do and how to do it. The single right mode of relations between a teacher and a parent/parents is mutual respect. Only then will the exchange of experiences, provision of advice and joint discussion result in a single mutually acceptable solution. The value of such relations is that they promote a sense of responsibility and civic-mindedness in both teachers and parents.

2. Trust in the educative capacities of parents, increase in their pedagogical culture and activity level in upbringing. The overriding majority of parents are psychologically ready to support all the initiatives of school. Even those without pedagogical training or higher education understand their responsibility for the upbringing of children.

3. Pedagogical tact, inadmissibility of careless interference in the life of family. A form teacher is an official capacity, but, in view of his/her functions, he/she is not a stranger to a schoolchild's family. Parents will often confide in and seek advice from a form teacher. The teacher should be tactful and friendly with any family he/she meets and put to good use all his/her professional skills.

4. Assertion of life is the major principle in solution of the problems of upbringing. It relies on a child's positive qualities, strong sides of family education and successful personality development. An educator's role is strewn with hardship, contradictions and unpleasant surprises. Educators should perceive these contradictions as growing pains, including their inconsistent and jump-like character, rigid cause-and-effect conditionality, selective character of a pupil's responsiveness to educative measures, imbalance between verbal and physical methods of influence etc.

Research work confirmed that the above-mentioned principles and functions can be taken into account in school monitoring as criteria of substantiation and expedience of interaction between school and family in the education of a child. It is obvious that school, which is a special social institution of education, bears the brunt of responsibility for the results of this interaction.

The experience of conducting school-based training of future teachers showed the effectiveness of the following type of organization of the students' work:

1st stage – preparation – including the setting of a goal, determination of an object, setting the timeframe of implementation, studying the appropriate literature, elaboration of tools for pedagogical monitoring;

2nd stage – practical – including collection of information by methods of observation, interviews, testing, questionnaires, analysis of lessons, doing of school tests.

3rd stage – analytical – implying the systematization of obtained information, analysis of collected data, elaboration of recommendations and suggestions for the future, and making conclusions. It can be summarized in the form of an analytical report, schemes, graphs, tables, diagrams including conclusions and recommendations.

A practical pedagogical training organized in this way including a compulsory monitoring of the educational-upbringing process of a school

provides teachers and administration with information necessary for managerial decision-making and determines the level of effectiveness of pedagogical means, the adequacy of didactic means (forms, methods, schedule etc of teaching) to the declared goals, age specifics of pupils and conditions of their activity. An important aspect of the conducted monitoring is the focus on not only the information about the level of the quality of education at a given time but also on the analysis of reasons for its inconsistency with the fixed norms and search for conditions of raising the effectiveness of the education -upbringing process.

In the implementation of monitoring of the educational process at secondary school as one of the main tasks of the practical training, the main systemic competencies are:

– An ability to advance concepts and models, invent and use new ways and tools of professional activity (SC-M2);

– An ability to take managerial decisions, anticipate their consequences and assume responsibility for them (SC-52);

– An ability to analyze and verify information, assess it in the course of professional activity, and, if needed, replenish and integrate it working under conditions of uncertainty (SC-M6).

These competences need to be specified in the skills and know-how that are be defined in the course of practical training at secondary schools and mastering a specific subject taught during this training. A university student is supposed to know the main results of research on the problems of monitoring of the educational process, modern approaches to measuring and assessing the quality of education as well as principles, criteria, indicators and subjects of monitoring. He/she should also be able to analyze and interpret the results of pedagogical monitoring, process empirical data of educational statistics and the results of monitoring, and to use statistical data for planning and managing educational monitoring as well as state and substantiate a request for missing information. Future teachers should also be able to employ the methods and methodologies of conducting monitoring, apply various techniques of collecting and analyzing data on the assessment of quality of education as well as quantitative and qualitative analysis for managerial decision-making and presentation of monitoring results. Having these skills means acquiring the experience of using them, which can be achieved during school-based practical training.

Another goal of organizing practical training for future teachers is determining the level of formation of the said competencies on the basis of clear criteria and indicators. In view of the above said, the issue of the criteria of effectiveness of monitoring of the educational process appears the most relevant.

As an indicator of efficiency, the scholar maintains that the information obtained in pedagogical monitoring must:

- be ethically well-balanced and violate no individual rights;
- contribute to the specification of personal and group objectives of an individual's educational activity;
- assess the level of professional training and determine the most effective ways of perfecting an individual's skills;
- motivate an individual to raise his/her professional level and stimulate personal growth;

- contribute to a constructive dialogue between the participants in an educational activity;

- create conditions for rational solution of problems that arise in a professional group;

- promote raising communication standards;

- assess the application of the State Educational Standard in the educational process.

The proposed methodology of pedagogical monitoring provides theoretical foundations for elaborating a number of specific monitoring techniques. The uniqueness of each technique will be determined by the object and subject of pedagogical monitoring, the forms, methods, ways and means of obtaining pedagogical information and the subjects taking part in pedagogical monitoring.

The use of IT, especially computer-aided testing, facilitates not only the correction and grading of work and storage of results but also obtainment of various statistical data, comparative analysis, and dependencies and characterizes a student's readiness for this form of pedagogical work. However, the skills and know-how acquired and perfected by students in practice are not always measurable by computer-aided testing and this point needs to be further investigated.

Upon completion of practical training, the two groups of students underwent another test, the results of which showed the efficiency of the above-mentioned organization of future teachers' training for the educational monitoring at secondary school. The results of testing before and after the practical training of students are presented in Table 1.

Table 1. Students' readiness for conducting monitoring of educational process, %

Levels of readiness	Group 1 (n=250)		Group 2 (n=250)	
	Before practical training	After practical training	Before practical training	After practical training
High	20	30	20	20
Medium	60	70	55	60
Low	20	-	25	20

Students of Group 1, who had the task of conducting monitoring at the level of one form, did not show a low level or an increase in the high and medium levels of readiness, while students of Group 2 did not show significant changes at all. Quantitative indicators suggested a clear-cut increase in the effectiveness of the students' training for the organization of the monitoring provided it is planned and implemented at the level of a form during the pedagogical training.

Monitoring of the educational process during the school-based training helps forecast the process and results of professional buildup of a future teacher. This provides for designing the curriculum of pedagogical disciplines on an interdisciplinary basis including modernization of forms and methods of their study and taking into account the needs of educational institutions of different levels and the necessity to build professional competencies of a student.

Discussion and Conclusion

The global practice presents various options for organizing students' training at schools. Of special interest is the activity of Laboratory "Scientific foundations for the educational process at universities" which was set up at the Chair of General Psychology of Kazakh National Pedagogical university named after Abai. Its activities are aimed at development and implementation of scientific recommendations for raising the quality of specialists' training at universities.

Participants in the institutional scientific-and-practical seminar led by Professor G. Saudabayev discussed the issues of elaboration and implementation of innovation methods of teaching in the education and upbringing processes at secondary schools. The participants in the seminar were teachers of basic schools who were involved in research as well as students of various years of study, whose activities were aimed at not only acquisition of professional knowledge but training for fulfillment of their professional functions. Special emphasis was placed on developing university students' skills of planning and carrying out pedagogical monitoring of the teaching process at secondary school (Tazhbayeva, Assilkhanova & Ilimkhanova, 2014).

It is pertinent to point out that A. Isaev, L. Isaeva & A. Kravets (2013) examine the relevance of assessing not only the current and final (pre-graduation) but also long-term results, which is the most important component. Kravets uses the example of monitoring of the educational process at Mogilev State A. Kuleshov University to show that monitoring can and must be systematic and continuous, be foreseen by a system of internal normative documents and defined as a result of marketing research.

We agree that these aspects should be taken into consideration during the admission of students, curriculum planning, organization of teaching, interim, current and final attestation, graduate placement procedure, and issuance of documents of higher education. Moreover, the studies of L. Buldygina (2007) and I. Kovalenko (2012) also confirm the importance of such marketing research in monitoring of the educational process during the pedagogical practical training in educational establishments.

On the basis of the analysis conducted it is possible to make conclusions with regard to monitoring of the educational process at secondary school that should be taken into account by future teachers in conditions of practical training at school. Monitoring presupposes continuous observation of a certain process with a view to revealing its conformity to a desired result or an initial assumption. From the perspective of educational management, monitoring should be regarded as a universal type of activity which is impartial to the content of its subject, and is aimed at constant screening of phenomena taking place in the real object environment with a view to including the results of the observation in the process of management.

We substantiated the criteria of the pedagogical innovations that are subject to monitoring, namely effectiveness, optimality, novelty, stability, possibility of creative use, and the principles of organization of joint educational activity of school (authority of parents, confidence in the educational capacities of parents, pedagogical tact, sanguine attitude to solving educational problems).

A sum-total of methods and technologies of conducting monitoring of the educational process at school was examined. These methods and technologies are mastered during the school-based practical training and include continuous

observation, test situations, explication, questionnaires, analysis of the results of educational-cognitive activity of learners and testing.

The above-mentioned principles can be taken into account for monitoring as criteria of pedagogical appropriateness of school and family interaction in a schoolchild's upbringing. It is evident that school as a social institute of education plays a decisive role in this interaction and bears the brunt of responsibility for its results.

To sum up, the monitoring of educational process during school-based practical training is considered from two perspectives: from the university-staff perspective and from the perspective of developing students' skills of implementing such monitoring. A future teacher and his/her supervisor should have a clear vision of the competencies necessary for the former's professional activities. These skills can be built during the practical training and concretized in knowledge, skills and competencies. Also relevant is the question of the criteria of effectiveness of monitoring at secondary schools and universities.

The aims and tasks of monitoring depend on the monitoring object selected, and the type of monitoring selected in each particular case. The process of monitoring exposes the psychological characteristics of its object. For example, the monitoring of educational process and pupils' academic progress does not provide complete information about the pupils' personal development, but allows the monitor to screen the dynamics of development of each pupil's personality, and the evolvement of his/her learning. Monitoring the evolution of a pupil's personality, his/her learning and cognitive activity can be implemented along such lines as:

- screening the parameters of activity in which the most attention is paid to procedural characteristics;

- accomplishing the goal of observation and evaluating the current mental state of the monitoring object and prognosis of its changes in the process of personal development.

Implications and Recommendations

Relevant for this research is the discrepancy between schools' real need for effective organization of monitoring of the educational process and insufficient readiness of present-day teachers to implement monitoring research. When future teachers undergo school-based training, they are supposed to be able to carry out monitoring of the educational process at school. This paper is dedicated to problems of carrying out such monitoring during such training. Thus, our research submissions may be useful in future studies on monitoring of the educational process in order to improve the quality of educational services.

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References

Borisenko, I. & Volodina, D. (2015). Educational Smart Technologies in the Educational Process. *Journal of Siberian Federal University: Humanities and Social Sciences*, *8(3),* 489-493.

Buldygina, L. (2007). Implementation of monitoring as a means of managing the professional development of pedagogues. *Informatics and Education*, *4*, 103-108.

Cawelti, G. (2000). *Handbook of Research on Improving Student Achievement*. Alexandria: Educational Research Service, 263 p.

Coates, H. (2010). Defining and monitoring academic standards in Australian higher education. *Higher Education Management and Policy*, *22(1),* 1-17.

Gorb, V. (2003). Technological aspects of pedagogical monitoring of interrelations of the subjects of educational activity at university. *Standards and monitoring in education*, *2*, 46-52.

Isaev, A., Isaeva, L. & Kravets, A. (2013). Individualized Educational Trajectory: Educational Courses Integration. *World Applied Sciences Journal*, *24*, 62-67.

Kara, A. & Skornichenko, N. (2012). Monitoring Of The Basic Educational Programs Mastering Quality In The System Of The University Innovative Activity. *European Journal of Business and Economics*, *7*, 45-52.

Kovalenko, I. (2012). Pedagogical monitoring as a means of managing the quality of education. *Newsletter of Tula State University. The Humanities*, *1(2)*, 262-271.

Kozhanova, M. (2016). Features of Pedagogical Management of Students Civil and Patriotic Qualities Forming. *International Review of Management and Marketing, 6(2S),* 20-31.

Lenske, G. (2016). The importance of pedagogical knowledge for classroom management and for students' achievement. *Zeitschrift Fur Erziehungswissenschaft*, *19(1)*, 211-233.

Levina, E. (2016). Efficiency Management of Educational Systems Development: Approaches and Criteria. *International Review of Management and Marketing*, *6(2),* 12-23.

Lovett, T., Clarke, C. & Kilmurray, A. (1983) *Adult education and community action*. Hampshire: Croom Helm, 363 p.

Mayorov, A. (2005). *Monitoring in education*. Moscow: Intellect Centre, 264 p.

Nikolaenko, V., Grakhova, E. & Rakhimov, T. (2016). Improving the Efficiency of the Educational Process Using Interactive Teaching Methods. Retrieved from: http://festival.1september-.ru/articles/521876/

Scheerens, J. (2003). *Educational evaluation, assessment, and monitoring*. Abingdon: Taylor & Francis, 325 p.

Shatalov, A. (2008). *Monitoring and diagnostics of the quality of education*. Moscow: Social Projects Institute, 175 p.

Shilibekova, A. S. (2011). Pedagogical monitoring in the system of general secondary education. *The Gazette of Kazakh National Pedagogical University named after Abai, Pedagogical sciences series, 4 (32),* 91-95.

Spector, J. M. & Yuen, A. H. (2016). *Educational Technology Program and Project Evaluation*. London: Routledge, 264 p.

Tazhbayeva, S., Assilkhanova, M. & Ilimkhanova, L. (2014). Conceptualizing for Educational Work Organization in Institutions of Higher Education: Mission, Goals, and Pedagogical Strategies for Reforming Higher Education in Kazakhstan. *Mediterranean Journal of Social Sciences*, *5(20),* 27-38.

Turgunbayeva, B. & Tikhomirova, V. (2006). *Pedagogical monitoring in the system of intensive further training of teachers.* Almaty: Kazakh Universiteti, 114 p.

Van Den Bogaart, A. C. (2016). A computer-supported method to reveal and assess Personal Professional Theories in vocational education. *Technology, Pedagogy and Education*, *1*, 1-17.

Vlasova, V. K. & Kirilova, G. I. (2012). Algorithms of monitoring and control of educational process in the context of electronic educational resources. *Quality Innovations Education*, *7*, 36-40.

Willms, J. D. (2003). *Monitoring school performance*. London: Routledge, 163 p.

Yelistratova, I. V. (2015). *Pedagogical monitoring in the system of assessing the quality of educational process at a teacher's level.* Direct access: http://festival.1september.-ru/articles/521876/

Yepaneshnikov, V. V. (2016). Pedagogical management of civil education of research universities students. *International Review of Management and Marketing*, *6(2*), 12-18.

Zeer, E. F. (2005). *Psychology of profession.* New-York: Foundation World, 352 p.