

VI International Forum on Teacher Education

Predictive Competence Formation Strategies of Students Pursuing a Master's Degree in Pedagogy

Nadezhda A. Sayfullina*

Kazan Federal University, 420008, Kazan (Russia), 18 Kremlyovskaya street, logopedkazan@mail.ru

Abstract

The current research becomes relevant due to the transition of higher education in the Russian Federation to a two-level system and country's integration into the world educational space. Training of master's student teachers is carried out in all federal and regional universities regardless of the status (public or private). The ability to predict is a necessary skill for professional stability and perspective, as well as for prognostic orientation in the education system ensuring its qualitative organization and effectiveness.

This article aims to reveal the main approaches to study the prognostic competence formation. The main approach to study master's student teachers' prognostic skills is the analysis and systematization of modern local research. The article reveals effective methods and means of forming master's student teachers' prognostic skills and proposes two ways to consider this problem. The methods of improving future teachers' training have been justified. Training can be improved with the help of integrated pedagogical support for the prognostic competence formation. The main goal is to attract future teachers to research activities. The materials presented in the article can be used by the teachers of higher educational institutions.

Keywords: a master's degree in pedagogy, university education, forecasting, prognostic competence.

© 2020 Nadezhda A. Sayfullina

This is an open access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Published by Kazan federal university and peer-reviewed under responsibility of IFTE-2020 (VI International Forum on Teacher Education)

* Corresponding author. E-mail: logopedkazan@mail.ru

Introduction

High-quality training of students pursuing a master's degree in pedagogy has become particularly relevant due to the transition of higher education in our country to a two-level system and its integration into the world educational space. Training of master's student teachers is carried out in all federal and regional universities regardless of the status (public or private). The ability to predict provides stable prognostic orientation in future teacher's professional path and opens up new opportunities to include modern innovative instruments into educational practice.

There is no doubt about the relevance of the research on the prognostic competence formation. The period of pursuing a master's degree in pedagogy becomes prior as it forms future teacher's personality. The ability to predict takes a prior place in professional structure of future teacher's personality.

Modern researchers, whose works are devoted to the pedagogical forecasting, come to a common conclusion about the relevance of solving a number of main prognostic problems. Among them: clarification of thinking qualities in pedagogical forecasting and changes in the predictive activity. As we understand the prognostic competence formation, it is a specially organized and purposeful process of developing the ability to perform actions aimed at obtaining a scientifically based forecast on the objects or subjects of the pedagogical process (Bekhter & Goncharova, 2015).

It is important to determine prognostic competence formation mechanisms in order to analyze the conditions for future teachers' training. Makarova (2010) proposed the following approaches to the prognostic competence formation: system-based personal development, contextual, competence-based and activity-based. The effectiveness of the above approaches is achieved by relying on a system of pedagogical principles: stage-by-stage, systematic, technological, integrity, and practice-oriented.

Considering the future specialists' training program special attention should be paid to the works of Kornilova (2008). In this work she shows the need for the predictive competence formation in the educational process structure. The author proposes a methodology for implementing organizational and pedagogical conditions for the future specialists' prognostic competence formation in a preschool educational institution. This technique is based on guidelines (principles) such as: interdisciplinary consistency, the types of student activity and the specifics of student's prognostic competencies formation through the acquisition of relevant experience.

Mironova (2001) identified functional, management and task oriented approaches to the formation of predictive skills. The author notes the need to form students' theoretical knowledge about the essence and content of pedagogical forecasting.

We relied on the conclusions of Matushak (2016), Buldakova (2014) and Tarasova & Goneev (2014). The ideas of these scientists help to realize the effective formation of pedagogical forecasting skills and the ability to predict.

Purpose and objectives of the study

The purpose of this work is to analyze the specifics of the competence formation strategies of students pursuing a master's degree in pedagogy as well as to determine the main methods and tools used in the prognostic competence formation process.

Literature review

In the context of master's student teachers' prognostic competence formation we rely on the following approaches: a personal approach, an acmeological approach and an activity approach.

1. Personal approach. This approach assumes that the student is at the center of education - his or her motives, goals, his or her unique psychological makeup, i.e. student as a person.

We share the opinion of Buldakova (2014), who emphasizes the need to use this approach in the development of teachers' predictive ability. The author determines the application of the personality-oriented approach to the main goal of pedagogical forecasting - personal development, carried out under the teacher's purposeful influences. Markova (1996) and Dyachenko (1976) highlighted the primary role of the personality-oriented approach to ensure the effectiveness of the learning process.

Zeer & Symaniuk (2014) note that the personal approach supposes that personality is the main driving force behind forecasting, as well as need for self-development and professional and psychological potential. According to researchers, forecasting is subordinated to the individual's need for realization and professional fulfillment. The value-semantic orientation of a master's student teacher appears to be such as: the interests of undergraduates, their relationships, motives and values.

The reliance on this approach contributes to the fullest realization of the master student's self-development process. Taking into account their aspirations and motives, existing experience of professional activity, initial self-centered predictive competence and the role of this phenomenon in the professional activity.

We took into account the values of undergraduates, their professional plans and prospects for professional development. With the independent consolidation of forecasting skills, we thought over the conditions for their implementation in the pedagogical process together with each master's student. During the solution of prognostic problems their content was corrected depending on the direction of their activity. So, for example, we changed the humanities disciplines to the natural science cycle disciplines for a group of "Pedagogy of Higher Education" master's students. When analyzing pedagogical situations we differentiated examples according to the stages of education for complete assimilation of the lecture material in such master's programs: "Pedagogy of vocational education", "Comparative research in education", "Pedagogy of higher education", etc.

The use of a personal approach is associated with taking into account the personal characteristics of master student teachers and includes the support of existing internal resources for the predictive competence formation.

2. Acmeological approach. The implementation of this approach implies that a high level of future specialists' prognostic competence contributes to its professional development.

The acmeological approach is considered in the works of Derkach (2000), Markova (1996) and others. According to Matushak (2016) the use of the acmeological approach in conjunction with pedagogical forecasting is a condition needed for teachers' professional development.

The acmeological approach emphasizes the future specialists' training to achieve professionalism. This problem is solved by organizing the future teachers training for predictive activities so that undergraduates improve pedagogical skills (for example, the ability to predict students' activities) at each stage of professional development.

Acmeological approach is humanistically directed. Only 5% of people become high-class professionals (data cited by Derkach, 2000). Choosing an acmeological approach, we pay special attention to the influence of predictive competence on future teachers' professionalism. This approach aims to optimize the future specialist's activities in the educational system.

In our work, we will teach the students pursuing a master's degree in pedagogy to predict professional growth, foresee the prospects for professional development, possible difficulties and strategies for eliminating them. As elements of acmeological analysis, we used a questionnaire survey, the results of which cover the knowledge component of predictive competence.

Within the framework of this study, the application of the acmeological approach is associated with ensuring the intensification of professional self-development and prognostic competence formation.

3. Proactive approach. This approach approves the idea of activity as basis, means and main condition for the development and formation of a personality. It also shows that the creative work of master's student teachers' is the most effective way of worlds' transformation.

Human development is carried out in its activity and that activity contributes to the formation of a future professional. The activity acquires its developing potential with a person's reflection of himself or herself and his or her activity. This methodological position, formulated at the beginning of the 20th century, only in recent years has begun to be realized and implemented in educational practice.

The activity approach is considered in the scientific works of Shadrikov (1980), Rubinshtein (1945), Talyzina (2007), Galperin (1996) and others. This approach as a methodological basis for the formation of predictive skills, predictive competence and pedagogical forecasting was considered by Zakharov (2010), Nashchekina (2008), Kornilova (2008).

As noted by Matushak (2016), the aim of the activity approach is to transfer the student into the position of the subject of cognition, communication and labor, which is impossible without planning activities, goal-setting, control and introspection. It can be concluded that the very purpose of implementing this approach emphasizes its predictive nature. The structure of pedagogical forecasting as an activity consists of a goal, its division into corresponding tasks, a forecasting process, the structural units of which are an algorithm of forecasting actions, a result and a corresponding goal. In the process of forming predictive competence and developing forecasting skills, the activity approach is implemented as a theoretical and methodological principle.

The implementation of the activity approach in our study ensures the transition of undergraduates to the position of the subject of knowledge, and also allows us to consider forecasting as a type of activity. This allows to reveal the essence, content, structure of predictive competence and theoretically and methodologically substantiate the system of pedagogical support for the predictive competence formation.

The implementation of a personal, acmeological and activity-based approach among master's student teachers allows us to build an educational process that would be aimed at resolving the well-known contradiction between the requirements of a modern, constantly changing society and the level of training of educational system specialists.

Pedagogical principles should be implemented using pedagogical rules which specify each of them and predict further steps in pedagogical practice. All of them are implemented depending on the specific pedagogical situation. Next, we will consider the basic principles of the predictive competence formation in the works of domestic researchers.

In 1978, the Committee of Scientific and Technical Terminology of the Academy of Sciences of the USSR formed a methodological basis for prognostics, which contains the following principles: 1) The principle of systematic forecasting. It assumes the subordination and interconnection between forecasts of the object and the forecast background and their elements. So, when making a forecast of the socio-economic development of the country, it is necessary to base it on forecasts of the development of regions and municipalities. Forecasting the development of municipalities is carried out taking into account the forecasts of the development of the region.

2) The principle of forecasting consistency. It requires the coordination of normative and exploratory forecasts of different nature and different lead times. The normative forecast, which is close in its content to the plan, should take into account possible scenarios and trends in the development of the forecasting object obtained as a result of exploratory (research) forecasting.

3) The principle of forecasting variance. It takes into account that in the conditions of high dynamism of the external environment, characteristics of modern society, the development of an object can go along different paths. This principle requires the development of several forecast options based on the forecast background options. In public administration, as a rule, two versions of forecast or scenario conditions are developed: pessimistic and optimistic. Often, a large variability of forecasts is required in situations of high uncertainty in the external environment.

4) The principle of continuity of forecasting. It requires that as new data about the forecasting object become available, the forecast must be corrected. Thus, the state forecast of socio-economic development in the short term is adjusted twice: based on the results of half a year and based on the results of three quarters as the forecast base for the next year. The principle of predictive verifiability indicates a mandatory procedure for checking the developed forecasts for accuracy, reliability and validity.

5) The principle of profitability of forecasting. It is closely related to reliability, because only a reliable forecast can be cost-effective. It means that the cost of developing a forecast should pay off and also bring either profit to the customer when using it or a positive effect in any other case. These principles are reflected in the acmeological concept of the future teachers predictive competence formation developed by

Prisyazhnaya (2006). However, the author did not include the principle of systematic forecasting and the principle of verifiability of forecasting into the set of applied principles

We have formulated the principles of prognostic competence formation for students pursuing a master's degree in pedagogy: the principle of professional expediency, the principle of systematicity and consistency, the principle of variability and the principle of competitive motivation. In our opinion the principle of competitive motivation is the most important reference principle in the prognostic competence formation of pedagogical magistracy student's. It is important to notice that the ability to predict is an important condition for future teacher's stable professional growth as well as his competitiveness in the modern educational system.

The provisions formulated by Zelenko (2011) take central place in the analysis of existing methodological approaches to the prognostic competence formation in the process of teaching master's student teachers. Scientist offered the main recommendations which we will cover in more detail:

1. First stage. The goal is to make sure that master's students assimilated typical models of prognostic operations and actions. Using vivid examples of pedagogical situations, the teacher demonstrates the use of variable forecasting techniques, their algorithm, sequence, and planned scenarios.
2. Second stage. The goal is to create a need for the development and creative application of search techniques in the process of solving predictive tasks. Master's student teachers should be able to apply heuristic methods and techniques in new pedagogical situations.
3. Third stage. Students pursuing a master's degree in pedagogy are able to determine the scientific basis of various situations and their consequences, as well as to demonstrate the independent use of heuristic methods in solving problems.

The author emphasizes that decision-making is the process of choosing one of the many possible ways of action that most satisfies the learning goals in a specific educational and pedagogical situation. The ability to make an informed decision depends largely on the ability to predict the expected result (Dymova, 1998).

The variable models developed by Russian scientists are worth to be considered as approaches to student's prognostic competence formation. Solobutina (2009) developed a comprehensive training program aimed at improving the level of anticipation abilities. The author notes that the greatest difficulties for the participants were caused by speech anticipation. It was expressed in the absence of general semantic connections for text tasks. It was proved that students chose the answers that were most likely being chosen

due to the correlation of semantic fields between lexical units in the semantic perception of speech (Solobutina, 2009).

Careful attention should be paid to the approach proposed by Bekhter and Goncharova (2015). The authors consider reflection and observation as priority factors in the development of specialist forecasting. Mironova (2001) revealed the process of forming the prognostic competence of pedagogical university students in the process of pedagogical practice. She identified functional, managerial, and task-based approaches to developing prognostic skills. The author notes the need to form student's theoretical knowledge about the essence and content of pedagogical forecasting. This should be reflected at the preparatory stage of the prognostic competence formation process.

The technology of forming student's prognostic competence, presented by Tarasova & Goneev (2014), is focused on independent gaining of new knowledge and creative solving of educational problems. These aspects allow us to take into account the authors' developments in the process of building an effective model for the master's student teachers' prognostic competence formation.

Implementation of the above approaches, technologies and programs allows us to build an educational process aimed at resolving known discrepancies between the requirements of a modern changing society and the specialist training level.

Methodology

Our research was conducted using theoretical methods such as analysis, synthesis, induction, deduction, comparison, generalization, systematization, abstraction and analogy. We turned to the philosophical, pedagogical, sociological, psychological and methodological works of well-known Russian scientists and practitioners.

Results

During the theoretical analysis of modern researchers work we clarified two directions in considering the problems of forecasting ability. They were proposed by leading representatives of pedagogical science and they differ in their pedagogical approaches.

Let's look at the first direction in more detail. The first direction is associated with an explanation of the prognostic ability development as a part of personality formation (Regush, 1985; Kraeva, 1999). These researchers convincingly prove that the development of prognostic ability is carried out in a spiral. Regush

notes (1985) that it is necessary to take into account the core of the forecasting ability in the formation of a higher predictive abilities level. According to the author, the core components of the predictive ability are the qualities of thinking processes: depth, perspective, analytics and evidence. Thus, the ability to predict pedagogical phenomena is formed through the acquisition of special knowledge (Regush, 1985).

However, this approach does not specify how to change the learning process so that the development of predictive competence is carried out most productively.

The second direction, highlighted by us, gives priority to the process of teaching the laws of pedagogical forecasting. Osipova (2000), Dymova (1998), and others believe that the conditions for successful prognostic training are mental characteristics of students.

The works of authors given above have one common feature. They consider the teaching system as a control unit, and the system of the student's activity as a managed one. The formation process is identical with the qualitative development of predictive skills. It is worth noting that there is a risk that psychological mechanisms can be identified with the mechanisms of assimilation and be replaced by them. Brushlinsky (1994) noted that the psyche is always inextricably linked with assimilation, but they are not identical.

Discussions

It is worth noting that educational practice and its modern requirements emphasize the need to develop a comprehensive program that can improve future teacher's prognostic skills and their performance.

Conclusion

We can assume that improving the current training of master's student teachers is possible due to full pedagogical support of future teacher's prognostic competence formation process. It will allow to consolidate the prognostic skill into professional practice. This can be possible through the involvement of master's student teachers in research activities. This process will be most effective through predicting the ways of future professional activities during seminars and practical classes. It will change students' attitude to their future professional activities.

Acknowledgements

The reported study was funded by RFBR, project number 19-313-90009.

References

- Bekhter, A. A., & Goncharova, E. V. (2015). *The phenomenon of anticipation in the context of acmeological development of a specialist*.
- Brushlinsky, A. V. (1994). *Problems of psychology of the subject*. Moscow: Institute of psychology, Russian Academy of Sciences.
- Buldakova, N. V. (2014). On the culture of professional forecasting in the competence training of University students. *The global scientific potential*, 8, 14.
- Derkach, A. A. (2000). *Acmeology: personal and professional development of a person*. Moscow: Russian Academy of public administration.
- Dyachenko, M. I. (1976). *Psychological problems of readiness for activity*. Minsk: Belarusian state University.
- Dymova, T. V. (1998). *Training future teachers in pedagogical forecasting* (Doctoral dissertation, Astrakhan State University, Astrakhan). Retrieved from <https://search.rsl.ru/ru/record/01000216532>
- Galperin, P. Ya. (1966). *Psychology of thinking and the doctrine of gradual formation of mental actions*. Moscow: Research of thinking in Soviet psychology.
- Kornilova, K. V. (2008). *Fundamentals of predictive activity in preschool educational institutions*. Magnitogorsk: Magnitogorsk State University.
- Kraeva, M. Yu. (1999). *Dynamics of prognostic abilities in psychology students in the educational process of the University* (Doctoral dissertation, Astrakhan State Technical University, Astrakhan). Retrieved from https://rusneb.ru/catalog/000199_000009_000288787/
- Makarova, E. V. (2010). Prognostic competence of students of agricultural universities. *Bulletin of University (State University of management)*, 11, 78-79.
- Markova, A. K. (1996). *Psychology of professionalism*. Moscow: Education.

- Matushak, A. F. (2016). *Pedagogical forecasting in the training of school teachers and University teachers*. Chelyabinsk: Chelyabinsk pedagogical University.
- Mironova, M. V. (2001). *Formation of prognostic skills of pedagogical University students in the process of pedagogical practice* (Doctoral dissertation, Krasnoyarsk State Pedagogical University, Krasnoyarsk). Retrieved from https://rusneb.ru/catalog/000199_000009_002278559/
- Nashchekina, N. V. (2008). Conditions for the development of predictive competence of heads of educational institutions in the process of professional development. *Education and self-development*, 2, 79-83.
- Osipova, N. N. (2000). *Preparation of primary school teachers for predictive activities in teaching mathematics to younger students*. (Doctoral dissertation, Penza State University, Penza). Retrieved from https://rusneb.ru/catalog/000199_000009_003201996/
- Prisyazhnaya, A. F. (2006). *Implementation of acmeological approach to the development of the concept of forming predictive competence of future teachers*. Moscow: Moscow State Pedagogical University.
- Regush, L. A. (1985). Development of the ability to predict pedagogical phenomena in students of the pedagogical Institute. *Questions of psychology*, 1, 94-102.
- Rubinshtein, S. L. (1945). The Problem of activity and consciousness in the system of Soviet psychology. *Scientific notes of Moscow state University*, 90, 12.
- Shadrikov, V. D. (1980). Psychological analysis of activity as a system. *Psychological journal*, 3, 33-46.
- Solobutina, M. M. (2009). Anticipation consistency in the structure of professional competence. *Philology and culture*, 17-18, 133-137.
- Talyzina, N. F. (2007). The essence of the activity approach in psychology. *Methodology and history of psychology*, 2, 157 -162.

- Tarasova, S. A., & Goneev, A. D. (2014). Pedagogical aspects of the formation of prognostic competence in medical students. *Bulletin of the Tambov University. Series: Humanitarian Sciences*, 5(133).
- Zakharov, A.V. (2010). Formation of prognostic skills of students of pedagogical higher education through modeling of pedagogical situations. *Actual issues of modern science*, 50-55.
- Zeer, E. F., & Simanyuk, E. E. (2014). Theoretical and applied bases of forecasting the professional future of a person. *Fundamental research*, 9, 1836-1869.
- Zelenko, G. N. (2011). Prognostic competence of a teacher. *Vestnik Sgutikd.*, 4, 133.