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Professional Culture of the Specialist of the Future

**ENHANCEMENT OF FORECASTING SKILLS IN THE ACTIVITY
OF TEACHERS OF THE FUTURE**

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Abstract

This paper presents the trends that directly affect the processes occurring in the education system. These processes are caused by rapid development of information technology and by a wide range of requirements for a future specialist, who needs to be trained today, considerably changing for this the methodology for designing the educational process, the content of education, the ways of its implementation and shaping the image of a teacher of the future. One of the leading roles in this image should be played by the function of forecasting within the teaching activity, with the help of which a teacher will be equipped with the technology of continuous self-development and attainment of his/her pedagogical maturity, independence in his/her actions based on responsibility for the decisions made. Enhancement of the role of forecasting in the professional activity of a modern teacher is also explained by the need to foresee the ways to improve the key and subject competencies of students, which they will need in their future activity as specialists that meet the requirements of the post-industrial society. The research presents different views of scientists on the implementation of the forecasting function in the process of training of a teacher of the future. The paper includes the results of survey held by the authors on how teachers assess and interpret the forms and roles of forecasting in their practice. The main focus of the paper is on its implementation within the scope of the humanistic paradigm in Russian system of higher education.

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Keywords: Education throughout life, forecasting, humanistic education paradigm, self-organization, self-education.



1. Introduction

Under current conditions called the post-non-classical (information) state of society, inadequacy of understanding of education as a system for something that is outside of it becomes more and more obvious. Considering the strategic issues of education, it is already impossible to ignore the entirety of world trends in the socioeconomic, ecological, demographic and sociocultural sphere that create a background for analysing the role of forecasting in the work of a specialist of the future (Zeer, 2016; Bjork, 2013).

2. Problem Statement

The relevance of the study is determined by current trends in the world development and by education policies in Russia related to enhancement of the role of creative and forecasting activities of specialists in all spheres and, in particular, in the work of a teacher and to enhancement of requirements for pedagogical education in terms of equipping a teacher with the technology of continuous self-development and attainment of his/her pedagogical maturity based on his/her ability to forecast.

The problem of forecasting in the activity of a teacher is still poorly developed both at the general pedagogical level and at the individual didactic level. In the context of modernization of the education system, multi-level higher education and transformation of the Russian education under the Bologna Agreement, it acquires great importance and new development opportunities. The professional activity of a modern teacher is characterized by the need to forecast the ways to improve the key and subject competencies of students and the ways to achieve them (Borisenkov, 2016; Isaeva, 2017; Kachalova, 2016; Hartmann, 2015).

The concept of the research is that under modern conditions, when discrepancies between the level of tasks outlined by projects in education and inadequate readiness of teachers to resolve them have increased, pedagogical forecasting is increasingly becoming a necessary and the most important professional function of a teacher, which determines the success of his/her activity in training a specialist of the future.

In contrast to previous stages in development of production, when the main part of social labour has been of a reproductive nature, today the share of creative labour is considerably growing. The dynamics of transformations in the production technology, social and economic structures began to outpace the dynamics of alternation of human generations. That is why the information society is often called a “continuously learning society”. Such a society needs a teacher of a new type, with the help of whom the result of general and vocational education should be development of the abilities of students to master, expand and improve new types of activity and the corresponding new knowledge and skills.

3. Research Questions

Enhancement of the role of forecasting in the activity of a teacher of the future.

4. Purpose of the Study

The purpose of the study is a theoretical and methodological analysis of the views on the function of forecasting in the activity of a teacher, which ensures the effective improvement of his/her

professionalism throughout his/her professional activity, as well as consideration of the current use of this function by teachers in the practice of working with students.

5. Research Methods

Analysis and synthesis of published materials on the issues of forecasting in the activity of a teacher, as well as systematization and synthesis of existing theoretical constructions and empirical data related to the purpose of the study.

The analysis process has shown that the system of pedagogical education is designed to create conditions for permanent self-education, professional and personal development of a teacher. Buyakas (2016) is convinced that development of an active, efficient teacher with self-discipline, initiative and creative potential, who is ready for self-development and self-improvement in the system of pedagogical education, is a consequence of introduction of the forecasting activity of future teachers in the pedagogical education and, in the future, of the forecasting activity of their students. Derkach (2016), Matushak, (2016) proved that forecasting activity equips a teacher with:

- ability to set a well-grounded goal of his/her professional and personal growth and development;
- desire for permanent professional growth and self-improvement;
- methodology and technology of forecasting for the purpose of professional and personal growth;
- ways to manage his/her own self-education, his/her own professional and personal development, the learning activity of his/her students, - ways of verifying his/her activities and, if necessary, adjusting them;
- and, finally, forecasting gives an optimistic perspective vision of new social phenomena, teaches us not to be afraid of changes and to find the optimal activity method using the scientific forecasting approach, obtaining the necessary experience of its implementation.

Analysing these new social phenomena, Volfson (2012) notes that today scientists see the development of secondary schools in a unified Europe in the XXI century in five variants.

Table 01. Variants of development of schools in Europe in the XXI century

Variant 1	Variant 2	Variant 3	Variant 4	Variant 5
“School that teaches” and forecasts its development. This school will only be engaged in education. Upbringing is a prerogative of the family and the church	“Selective School”, which will deal with rigid differentiation. In such a school, the priority task is quality, “production of competitive products”	“Schools in the sociocultural system.” They set a goal of achieving the optimal ratio of education and upbringing, but the criteria for optimality cause discussions among scientists	“Technological School” requires a lot of money, since it involves the use of the most up-to-date TTA (technical teaching aids)	“Differentiated school” is designed to create a separate curriculum for each child.

From the standpoint of the humanistic education paradigm, in our view, to include forecasting in the activity of students, only the variant of school No. 5 can be realistic. That is, we mean here only external forecasting.

The problem of forecasting is also studied in the American continent. Some scientists believe that the main goal of educational forecasting should be the desire to help schoolchildren and students cope with life crises. Thus, in his studies the emphasis is on teaching internal forecasting. Pedagogical forecasting defined in the US as educational futurism is designed to teach schoolchildren and students to anticipate changes in the life of society and adapt to them. Adherents of this trend see the task of education in teaching schoolchildren and students a knowledgeable, competent choice of an educational trajectory and career. This is how some authors of the research (Matuszak, 2015; Learning and Development to Achieve Strategic Business Aims, 2015) determine this.

In our country, within the framework of the humanistic education paradigm, a person-centred approach is widely used in training future teachers for pedagogical forecasting. Proceeding from the research of Kiriakova (2017); Ryabinina, (2013) and from our own research Belyakov (2018), we will analyse the provisions of this approach using the example of higher pedagogical education:

1. A student is not an object but a subject of activity. He/she is characterized by individuality, original experience. A student is not a product of education but its active participant. The forecasting activity of a future teacher in vocational training promotes the transfer of a student as an object of education in the paradigm of knowledge and skills to the position of a subject of cognition. A student independently sets a goal of his/her own activity, forecasts the ways of achieving it, notes the results of his/her progress in educational and quasi-professional activities;

2. The process of education and vocational training is designed taking into account the organization of teaching as an individual activity for changing, internalizing the standards set in education.

Matushak (2016) believes that the first step towards forecasting activity is actualization of fantasy and imagination. Then a student should be taught the logical organization of information.

The practice of our work showed (Belyakov, 2018) that in order to correctly perform the students' forecasting orientation, it is necessary to have the skills of analysing the information collected. It is not fortuitous that most of the research methods in social science are based on the logical organization of forecast data. The student's vision of his/her own activities over the long term, in combination with the ability to correctly collect and record data for later processing and use, is the basis of pedagogical foresight. Since one of the aspects of forecasting is a professional aspect, the ability to logically organize information is of primary importance for a future teacher. This means that any variant of a plan or a lesson schedule, any type of student's notes is a form of logical organization of information, Korzhuev (2016) believes.

Mitina (1997) believes that the educative side of forecasting should be mastered by a student through training with the help of tasks for "actual forecasting". In other words, this side of forecasting presupposes the formation of the level of forecasting competence of schoolchildren, students and young specialists, that is, systematic exercises should be used for the formation and development of competence.

When teaching the forecasting activity to students of a higher pedagogical university, one must also take into account the fact that they act both as objects and as subjects of forecasting. On the one hand, students learn to forecast their own learning activities and, on the other hand, in the course of teaching practice they will manage the forecasting of schoolchildren.

The studies of Ryndak & Mikhaleva (2017), Slabaya and Belyalova (2016) show that for successful forecasting it is necessary to teach this activity to a future teacher by implementing one of the most

important principles of educational forecasting - the principle of forecasting management by the teacher. The same principle can be called the principle of teaching forecasting. It includes prognostic perception, recreating imagination, fantasy, competent choice, combination and forecasting. In such a case, training begins with teaching how to understand the goals set by the teacher. Students should be able to record the results of their activity. The next step is training of the ability to logically organize the information obtained in the learning process. Along with this, a student needs to be taught schematization, grouping of the material, singling out the basic semantic points, structuring and elements of modelling.

Matushak (2016) believes that the next group of knowledge, skills, qualities that is part of the concept of prognostic competence should be associated with the formation of a planned prognostic base competence. As a result, students develop an “internal vision” of their learning activity. An important element in teaching forecasting is training to fantasize or actualize fantasy. To actualize fantasy, teachers use creative tasks. Western teachers often resort to training in fantasy. For example, Williams (1983) gave such a task in the study of nouns for development of fantasy, according to which it was formulated differently for students with a predominance of rational or humanitarian mind-set.

One of the types of key prognostic competencies singled out by us is operational and forecasting competence presupposing the work of a student, which is the basis for the vision of his/her own activity over the long term. This position was given in other works by Lvov & Chernysheva (2015), Klarin, (2016). We have included in this competence knowledge and skills of organizing information according to the forecast background, developing a forecast, analysing a forecast. The training of this competence forms the basis for managing forecasting of students by a teacher.

When teaching the forecasting activity to students of a higher pedagogical university, one must also take into account the fact that they act both as objects and as subjects of forecasting. On the one hand, students learn to forecast their own learning activities and, on the other hand, in the course of teaching practice they will manage the forecasting of schoolchildren. Therefore, another important principle of forecasting is a principle of parallel training in forecasting. In teaching forecasting to each category of students in the system of continuous vocational education, in which they receive training, we apply all kinds of tasks, but we mainly focus on the level of forecasting to which this stage is most applicable.

The method of demonstration in professional-pedagogical education involves a teacher showing the technology of forecasting. This is necessary, first, as a model for the analogy of learning activities. For example, Sarsenbaeva & Zhumbaeva (2015) thinks that in forecasting at the project level, firstly, the entire project must be demonstrated to students. A teacher shows how the material is collected, how the topic is selected, how the hypothesis is set up, how the work is organized to verify it, and how the final result (project) looks like. Slabaya & Belyalova (2016) states in her research that the first projects should be made under the supervision of a teacher and using a model of the project that he/she developed. At this stage, it is possible and even reasonable to use memos. The method of explanation includes a number of techniques: explanation, presentation of a rule, reference to a model of the forecast task.

Training is achieved by the exercise method. Exercises “polish”, perfect individual actions of forecasting. Depending on the level of forecasting and the nature of actions, exercises are subdivided into groups: for training in forecasting at a naively-intuitive level, for training in experimental-logical forecasting, for training in scientific-hypothetical forecasting, for teaching goal-setting, for teaching

planning, for teaching programming and for training projecting, as proved by Matuszak (2016) in her studies.

Concluding the theoretical and methodological analysis on the presentation of scientific provisions on the problem of forecasting in the activity of a teacher of the future, let us now turn our attention to the prognostic processes that serve the everyday activity of a modern teacher. We note that they do not have the scientific basis, and often they do not have the necessary conditions for the most normal perception of a student by a teacher and for construction of an efficient interaction with him/her (Zaruba, 2015). With a holistic view of the teacher's abilities to foresee, we observe the existence of empirical predictions based on perceptions and directly related to their daily practical activities, which emphasized the great importance of observation in their prognostic pedagogical activity based on intuition.

In the course of our observations of the work of teachers in the system of professional development, questioning and interviews with them on pre-prepared questionnaires, we concluded that the teacher's practical activity was built on foresight, not based on scientific laws, and it implied making operational decisions built on forecasts that arose directly in the process of activity and were based on concrete facts of the teaching and educational process. This is confirmed by other studies (Zeer, 2014; Zaruba, 2015). Recurrence of the facts of pedagogical phenomena promoted the formation of essential links between events and, thus, the formulation of certain empirical laws. And as we have noticed, a special role in the formation of empirical predictions is played by personal qualities of a teacher: the level of practical thinking of a forecaster, the level of development of his/her observation skills, his/her attitude to the activity of forecasting. Teachers viewed forecasting as an integrative quality of their activity, a consistent orientation mostly on the nearest intermediate result.

Proceeding from this, we define empirical forecasting as a process of obtaining by a teacher of advance information about individual characteristics of pedagogical reality that does not have a special scientific justification and is based on the method of extrapolation of the current information and knowledge about the past and the present of an object. Thus, the result of the forecasting process is an empirical forecast concerning a specific pedagogical fact or phenomenon, and the object of forecasting is specific phenomena of the teaching and educational process, while the subject of it is a professional activity of a teacher associated with making operational and short-term decisions. But in the process of education and upbringing of schoolchildren there is often a need for forecasts of the future state of a student or a group. When developing such forecasts, it is important not only a standardized retrospective analysis of past trends, but also the psychology of a person for whom the forecast is made.

In the course of practical communication with teachers, we compiled a questionnaire entitled "The teacher's ability to forecast" and held individual interviews with teachers, the results of which made it possible for us to develop a table that helped us summarizing the views of teachers on their forecasting activities.

Table 02. Construction and use of forecasts in the practice of teachers of the Rostov region, Russia

Mastering the basics of forecasting	Accounting for conditions affecting the forecast	Forecast and its forms	Using the forecast
Scientific knowledge of a subject	State of a teacher	Plans	Grounded selection of the content and methods of a lesson
Knowledge of a subject	Features of a class or a group	Consequences	Organization of the teacher's activity
Knowledge of age and individual characteristics of students	Level of readiness for classes and communication with students	Models, hypotheses	Organization of students' activities
Using the experience of pedagogical activity			

As we see, the forecasting function of teachers is at the situational-empirical level and does not play the role of a strategic reference point in improving their activity on the scientific and theoretical basis, and this cannot but lead to the idea that training of a teacher of the future must include the use of scientifically grounded models and technology of development of this function in their activity.

6. Findings

Summarizing the results of the study, we came to the following conclusions.

1. We have found that the priority task of the current stage in the development of pedagogical forecasting in Russia should be a scientifically grounded and structured model for training future teachers in their professional activity by means of pedagogical forecasting, in which both external and internal forecasting, current and prospective forecasting will be implemented.

2. However, the current practice of teachers in implementing the forecasting function in the educational process is based on intuitive and empirical approaches, in which it cannot be implemented completely and efficiently. The analysis has shown the necessity and the possibility of using a theory in training future teachers that will determine the theoretical-methodological and methodological and technological aspects of teaching pedagogical forecasting.

3. Formation of forecasting competence of future teachers should be considered on the basis of the primary provisions of the person-centred and competence approaches and take into account the priority of the individuality of a student and his/her personal meanings, the cooperation of a student and a teacher.

4. The structural and functional model of the educational and cognitive orientation for the formation of forecasting competence of future teachers should be aimed at the formation of forecasting competencies that are part of the educational and predictive competence and the orientation of students of a pedagogical university to forecast their own cognitive activity.

7. Conclusion

The problem addressed in the study is too extensive and complex to be solved within the framework of this paper. One thing is clear: the methodology and methods of training of a new type of teacher should

be built on the search for forms and methods of education that are suitable for the needs of time, aimed at developing the ability of students to make independent decisions under the conditions of free choice and personal responsibility for the results of these decisions. The key position here is development of the forecasting ability of a future teacher, his/her effective independence, allowing building his/her activity on an innovative and creative basis at the level of personal meanings. This will make it possible for educational institutions to transform into responsible educational environment that creates all the necessary conditions for training of a specialist in the post-industrial society. The dominant metaphor for this would be not the mechanical worldview of the twentieth century, but the organic concept of a self-organizing world.

References

- Belyakov, V.V. (2018). *Samoorganizaciya i samoupravlenie studenta v ego obrazovatel'noj i poznavatel'noj deyatel'nosti na osnove refleksivnyh processov* [Self-organization and self-management of a student in his educational and cognitive activity on the basis of reflexive processes]. Rostov-on-Don, Russia: SFedU. [in Rus.]
- Bjork, R.A. (2013). Desirable Difficulties Perspective on Learning. In H. Pashler (ed.), *Encyclopedia of the Mind*. Thousand Oaks: Sage Reference. <http://dx.doi.org/10.4135/9781452257044.n88>
- Borisenkov, V.P. (2016). Klyuch k povysheniyu kachestva obrazovaniya. [The key to improving the quality of education]. In *3rd Intern. Conf. Activity Pedagogy and Teacher Education (DPPO-2015)*. (pp. 11–24). Voronezh: Nauchnaya kniga. [in Rus.]
- Buyakas, T.M. (2016). Svyaz' professional'noj i lichnoj samorealizacii v processe professional'nogo obrazovaniya. [The connection of professional and personal self-realization in the process of professional formation]. In S. I. Kudinov, S. S. Kudinov, & O. B. Mikhaylova *Russian Scientific-Practical Conf. Self-realization of the individual in the modern world*. (pp. 19-26). Moscow: Russian University of Peoples Friendship. [in Rus.]
- Derkach, A.A. (2013). Psychological and acmeological foundations and means for optimizing the personal and professional development of a competitive specialist. *Acmeology*, 51, 22–32.
- Hartmann, E. (2015). Universal Design for Learning (UDL) and Learners with Severe Support Needs. *International Journal of Whole Schooling*, Vol. 11(1), 54 – 67.
- Hattie, J. (2015). *What Works Best in Education: Politics of Distraction*. London: Pearson.
- Isaeva, T.L. (2017). Formation of professional competencies for successful employment of young people in the modern world. In *Socio-humanitarian studies: Collection of scientific-method. works*. (pp. 49–59). Moscow: Pero.
- Kachalova, L.P. (2016). Formirovanie issledovatel'skoj kompetencii studentov universiteta na osnove refleksivnoj deyatel'nosti. [Formation of the research competence of university students on the basis of reflexive activity]. In N.V.Ippolitova, N.V. Skorobogatova, & S.L.Suvorova (Eds.) *Intern. Scientific-Practical Conf. Continuous Education in the 21st Century: Problems, Trends, Prospects for Development*. (pp. 42– 45). Shadrinsk, Russia: Shadrinsk State Pedagogical University. [in Rus.]
- Kiriakova, A.V. (2017). Cennostnye orientacii studentov - aksiologicheskij resurs kachestva universitetskogo obrazovaniya. [Value orientations of students - an axiological resource of the quality of university education]. In *Russian Scientific-Methodical Conf. University complex as a regional centre of education, science and culture*. (pp. 2847–2853). Orenburg, Russia: Orenburg State University. [in Rus.]
- Klarin, M.V. (2016). *Innovacionnye modeli obucheniya. Izuchenie mirovogo opyta. [Innovative learning models. The study of world experience]*. Moscow: Luch. [in Rus.]
- Korzhev, A.V. (2016). *Didaktika vysshego obrazovaniya. [Didactics of higher education]*. Moscow: Yurait. [in Rus.]
- Learning and Development to Achieve Strategic Business Aims*. (2015). Henley –on – Thames: Henley Business School.

- Lvov, L.V., & Chernysheva M.V. (2015). Theoretic-methodological bases of designing of the motivational mechanism in professional-educational process. *Psychology of learning*, 12, 4–15.
- Matushak, A.F. (2016). *Pedagogicheskoe prognozirovanie v podgotovke uchitelej shkol i prepodavatelej universitetov*. [Pedagogical forecasting in training teachers of schools and university teachers]. Chelyabinsk: Publishing house of Chelyabinsk State Pedagogical University. [in Rus.]
- Matuszak, A. (2015). Students' Culture of Trust in Internet Sources Use: Cross-cultural Research. In E. Perzycka (Ed.) *Contexts of Trust in ICT-Aided Educational Interactions*. (p.231-240). Szczecin: Wydawnictwo naukowe Uniwersytetu Szczecinskiego.
- Mitina, L.M. (1997) Lichnostnoe i professional'noe razvitie cheloveka v novyh social'no-ehkonomicheskikh usloviyah [Personal and professional development of a person in new socio-economic conditions]. *Issues psychology*, 4, 28–38.
- Ryabinina, N.P. (2013). Integrativnaya model' obucheniya v obuchenii studentov pedagogicheskogo universiteta. [Integrative model of tutoring support for the education of students of the pedagogical university]. *Theory and practice of social development*, 12, 53. [in Rus.]
- Ryndak, V.G., & Mikhaleva, E.S. (2017). Teoreticheskie aspekty razvitiya potenciala odarennogo podrostka v kreativnom obrazovanii [Theoretical aspects of the development of the potential of a gifted teenager in creative education]. *Bulletin of the Orenburg State University*, 10 (210), 139-143. [in Rus.]
- Sarsenbaeva, B.I., & Zhumbaeva A.A. (2015). Osobennosti formirovaniya lichnosti budushchego uchitelya. [Peculiarities of forming the personality of a future teacher]. In *IX Intern. Scientific-Practical Conf. Pedagogy and psychology in the context of modern studies of the problems of personality development*. (pp. 107-1109). Makhachkala: Aprobaciya. [in Rus.]
- Slabaya, O.S., & Belyalova, M.A. (2016). The role of pedagogical abilities in the professional activity of a teacher. *International Journal of Applied and Fundamental Research*, 11-4, 788-791;
- Volfson, B.L. (2015). Modernization of the content of general education: comparative context. *Domestic and Foreign Pedagogy*, 3 (12), 5–22.
- Williams, L.V. (1983). *Teaching for the two-sided mind: A guide to right brain / left brain education*. New Jersey: Englewood Cliffs.
- Zaruba, N.A. (2015). Adaptivnoe upravlenie formirovaniem professional'noj kompetentnosti uchitelej posredstvom professional'nogo razvitiya. [Adaptive management of the formation of professional competence of teachers by means of professional development]. *The Bulletin of the Kemerovo State University of Culture and Arts*, 2(31). 188-192. [in Rus.]
- Zeer, E.F. (2014). Kompetentnyj podhod k modernizacii professional'nogo obrazovaniya. [Competence approach to modernization of vocational education]. *Higher education in Russia*, 4, 23. [in Rus.]
- Zeer, E.F. (2016). Prognozirovanie professional'nogo budushchego lichnosti: teoriya i praktika. [Forecasting the professional future of an individual: theory and practice]. In E. M. Dorozhkin & V. A. Fedorov *XXI International Scientific-Practical Conf. Innovations in professional and vocational education*. (pp. 261–264). Ekaterinburg: Russian State Vocational Pedagogical University. [In Rus.]