



Meta-Educational Design as a Technology of Professional Development of Teachers

Irina Y. Burkhanova^{1*}, Mariyash E. Akmambetova², Elena A. Saveleva-Rath³,
Svetlana S. Ivanova⁴, Anastasia V. Stafeeva⁵, Nikolay B. Vorobyov⁶, Ekaterina V. Ignatyeva⁵

¹Department of Physical Education Theoretical Foundations, Kozma Minin Nizhny Novgorod State Pedagogical University, Nizhny Novgorod, Russia

²Department of Pedagogy and Continuing Professional Education, Astrakhan State University, Astrakhan, Russia

³Department of Professional Development of Pedagogical Personnel, Federal State Budget Educational Institution "International Child Center "Artek", Yalta, Russia

⁴Department of Physical Education Theoretical Foundations, Kozma Minin Nizhny Novgorod State Pedagogical University, Nizhny Novgorod, Russia

⁵Department of Physical Education Theoretical Foundations, Kozma Minin Nizhny Novgorod State Pedagogical University, Nizhny Novgorod, Russia

⁶Department of Physical Education Theoretical Foundations, Kozma Minin Nizhny Novgorod State Pedagogical University, Nizhny Novgorod, Russia

⁷Department of Theory and Practice of Foreign Languages and Linguistics, Minin Nizhny Novgorod State Pedagogical University, Nizhny Novgorod, Russia

Received: 17/07/2019

Accepted: 26/11/2019

Published: 20/02/2020

Abstract

This article discusses the problem of technological support for the professional development of specialists in the field of physical education and sports, which is especially acute in modern society, where social requirements for them are becoming stricter and adamant, and the conditions for the manifestation of pedagogical creativity are significantly reduced due to the introduction of multilateral normative regulation of the teacher and trainer. In these conditions it is difficult for a specialist to choose a vector and methods for realizing his own potential in his professional activity. Physical education teachers working in the framework of institutions of additional education for children are considered in the article as the illustration of this problem. The goal is to analyze the content-technological and organizational support for the professional development of a physical education teacher in an educational organization to identify a set of pedagogical conditions that increase the efficiency of this process. The article presents the results of an author's study of the dynamics of professional development of teachers in the field of physical education using meta-educational design technology. The stages and mechanisms of this process are described. The materials can be used to organize the formation of professional competence and professional development of secondary vocational, higher and additional professional education in the field of physical education and sports, as well as adaptive physical education and adaptive sports.

Keywords: Self-development, Meta-educational design, The need for self-realization mechanisms and stages of its formation

1 Introduction

The relevance of the research topic is determined, first of all, by the fact that the modernization of education is one of the priority areas of state policy in the Russian Federation. New challenges of the time give rise to fundamentally different requirements for education, its results, and therefore, a new generation of education standards introduction is currently in the process (1-3).

In the context of the introduction of Federal State Educational Standard, the content of education on the subject "Physical Education" is fundamentally changing. Its purpose is to create a competent, physically cultural personality of a student (4-6). Updating the content of education in the field of physical education determines not only the introduction of new forms of work with students (7, 8), but also the strengthening of the requirements for the professional competence of a physical education teacher and his professional development (9).

It is necessary to point out that in conditions of serious competition in the labor market, it becomes important to possess such personal traits as initiative, creative thinking, the ability to find innovative solutions, choose a professional

Corresponding author: Irina Y. Burkhanova, Department of Physical Education Theoretical Foundations, Kozma Minin Nizhny Novgorod State Pedagogical University, Nizhny Novgorod, Russia. E-mail: irina2692007@yandex.ru.

path, and the desire to learn throughout the whole life. The formation of these skills is a difficult task for a modern teacher. Therefore, their professional development comes to the fore (2, 10-15).

The desire for professional development enables the teacher to plan the process of achieving educational results by pupils and make them their skills in the process of constant self-evaluation (16, 17). Moreover, the problem is urgent due to the development and implementation of effective management technologies and their assessment, the legal and regulatory aspect of the activity, the creation of modern management models for the development of both: the system of general, additional and vocational education and each individual teacher; the need to determine a set of pedagogical conditions that increase the effectiveness of teachers' professional development on physical education.

Thus, the contradiction between the social and personal relevance of the teacher's constant self-development and the lack of sufficient attention and conditions for organizing this process in the structure of educational and professional activity becomes apparent. The purpose of this study is to determine the qualitative characteristics of professional self-development of a teacher during physical education, to identify the stages and mechanisms of its formation in the structure of postgraduate education.

2 Materials and Methods

The aim of the study is to analyze the content-technological and organizational support for the professional development of a physical education teacher in an educational organization to identify a set of pedagogical conditions that increase the efficiency of this process.

Research hypothesis: we assume that the professional development of a physical education teacher in an educational organization will be effective if the following conditions are observed:

- The essence and components of the process of professional development are determined;
- Pedagogical conditions that provide an increase in the efficiency of the process of professional development of a physical education teacher have been created;
- A program for the professional development of a teacher in physical education was developed and implemented.

To solve the problems stated in the study, the following research methods were applied:

- Analysis and generalization of scientific and methodological literature;
- Control and evaluation methods;
- Pedagogical experiment;
- Mathematical and statistical processing of research results.

The following methods and techniques were used to determine the state of components of professional development.

To determine the component "Development of professional competence", we used the "Diagnostic card of professional competence of physical education teachers" (18), and observation. To determine the component "Personal development", the methodology "The teacher's desire for

self-development" (19), and conversations were used. To determine the component "Improvement of physical condition" we used the test "Assessment of overall physical performance (Ruthier)" (15), and observation.

The study was conducted from October 2018 - April 2019. The study involved 16 teachers of PE (teachers of PE, trainers of sports schools, teachers of commercial institutions of physical education and sports). The participants were divided into 2 two groups:

1) Experimental group (EG) - 8 people (working in a private educational institution of additional education "URA", Nizhny Novgorod);

2) Control group (CG) - 8 people (working in other educational organizations).

As part of the study, all teachers carried out the design of their professional development

3 Results

A systematically organized, appropriate and continuous process of development of professional and personal qualities that ensure the teacher's readiness for self-realization in professional activity, through self-determination, self-education and self-education is understood under the professional development of the teacher in the study. The activity of teachers participating in the experimental group, aimed at research and solving the problem, was a meta-educational design, which is aimed simultaneously at the formation of educational, research results and scientifically based product of activity (10, 20, 21).

Meta-educational design (MED) allows you to regulate the process of self-education and self-development of teachers in solving personal-significant professional problems. The results of meta-educational design are aimed at transforming the subject through the transformation of the object, which allows to increase motivation for educational activity and self-development (11, 22). As a number of scientists indicate, the value of meta-educational design lies in the fact that it is the driving mechanism of developing education, personal and professional growth (23-25). Meta-educational design, unlike educational and social, is aimed at solving both the external and internal personality-significant problems of the subject of this design. Thus the project audience and the project team in this activity are identical.

The importance of meta-educational design technology in relation to the formation of professional competence of physical education teachers and trainers is that the goal of design is to search for solutions to not just professional, but personally significant problems and transformation, improving the personality of the subject of meta-educational design, in particular, the formation of diverse professional positions. This becomes the basis for the development of multipositional thinking of a professional, since the problem is considered from various scientific and practical aspects. The technology of meta-educational design includes invariant stages of project activity: development of a project idea and a project task, project initialization, activity planning, implementation phase and reflection. Meta-educational design is an invariant basis for professional development and is implemented in five stages: meaningful, design, implementation, effective and reflective.

The design steps are presented below. (a) At the purposeful stage the goal was set and the meaning of professional development was determined; (b) design stage was necessary to form an individual route of professional development; (c) the stage of implementation is associated with the direct implementation of the individual route of professional development; (d) effective - to determine and evaluate the result of designing professional development; and (e) at the reflective stage the understanding of the changes that occurred in the personal plan and in professional activity was carried out.

The components of the professional development of a teacher in physical education are: (a) Development of professional competence; (b) Personal development; and (c) Improvement (maintenance) of physical state. The conditions for the professional development of a teacher in an educational organization are: (a) reforming or restructuring the educational and professional environment of the organization; (b) use and improvement of the necessary infrastructure and educational material base of the educational organization; (c) application of design technology; and (d) pedagogical support of the professional development of the teacher.

For the successful implementation of the programs of individual professional development of teachers in physical education, the content of a special course was developed (Table1), which was implemented in September 2018 for all participants of the experiment.

Orientation to the conceptual foundations of the substantive support of the development process of a physical education teacher self-education allowed us to develop the content of the special course presented above. In particular, it was focused on:

- Taking into account the specifics of professional activity,
- The needs of specialists,
- Typical requests in connection with professional development;
- Existing ideas about the modern content of the professional development of the teacher.

4 Discussion

After mastering this course, the participants of the experimental group implemented individual trajectories of professional development within the framework of one educational organization, where a set of pedagogical conditions was created to increase the effectiveness of the professional development of a teacher in PE. Correction of individual trajectories was carried out at monthly consultative meetings. Participants of the control group implemented individual trajectories of professional development at the place of their professional activity. Correction of individual trajectories was carried out at the request of teachers as part of individual consultations. Table 2 presents the dynamics of the studied indicators of the control and experimental groups during the study.

Table 1: Curriculum plan of the course "Regulation of the professional development of a teacher of physical education"

№	Name of sections and topics	Total hours	Hours for		Form of control
			Lectures	Practice	
1	The grounds of the activity approach in the management of professional development.	2	2	-	-
2	The essence and significance of the professional development of the teacher	2	2	-	-
3	Vectors of activity of professional development of a teacher	2	2	-	-
4	Theoretical and technological basis for designing the activities of a teacher's professional development	8	2	6	-
5	Diagnostics of the level of professional activity of a teacher	4	2	2	-
6	Independent work	-	-	-	-
Итого:		18	10	8	Personal Professional Development Project

Table 2: The Dynamics of the components of professional development and teachers of physical education of the control and experimental groups

Professional Development Components	CG, n=8				EG, n=8			
	Before the experiment, points	After the experiment, points	Dynamics		Before the experiment, points	After the experiment, points	Dynamics	
			points	%			points	%
Development of professional competence	74,1	85,7	11,6	15,7	72,8	102,8	30	41,2
Personal development	41,5	50,3	8,8	21,2	43,1	69,1	26	60,3
Physical state improvement	10,7	10,1	0,6	5,6	11,2	6,2	5	44,6

Thus, the growth in the component "Development of professional competence" in the control group was 11.6 points (15.7%), in the experimental group - 30 points (41.2%).

The improvement in the "Personal Development" component in the control group was 8.8 points (21.2%), in the experimental group - 26 points (60.3%). Improvement also occurred in the component of professional development "Physical state improvement" in the control group by 0.6 points (5.6%), in the experimental group by 5 points (44.6%). As shown by mathematical data before the study, the results in the groups did not differ significantly. The differences in the groups after the experimental work are significant. So, the estimated student t-criterion for the component "Development of professional competence" was $t = 3.05$ at $p \leq 0.01$; by the component "Personal development" - $t = 3.38$ at $p \leq 0.01$; in the component "Physical state improvement" - $t = 3.24$ at $p \leq 0.01$.

In the framework of the study, the set of pedagogical conditions was clarified according to the questionnaire results and the degree of their influence on the effectiveness of the professional development of physical education teachers was determined. The questionnaire was attended by 16 teachers - participants of the experiment and 25 teachers and administrative workers of educational organizations where the participants of the experiment conduct their work. The identified rating of pedagogical conditions, according to the subjects of educational activities participating in the experimental work, is shown in Figure 1.

Consequently, the implementation of the professional development program for the teacher of the PE developed as part of the study, while creating the appropriate set of pedagogical conditions, allows optimizing this process and in the future creating the necessary conditions for the quality work of PE teachers' direction of professional development.

5 Conclusion

Based on the foregoing facts and results, it is clear that the teacher needs to learn constructive skills to comprehend and rethink his activities through self-analysis of classes, pedagogical situations, the results of education in general, and rethinking contributes to the process of subjectivation and increased responsibility for the results of their actions. Only readiness for creativity will allow a professional teacher to organize research and search activities.

As a result of the work we consider it possible to draw the following conclusions.

1. The teacher's activity on professional development is a systematically organized, expedient and continuous process of developing professional and personal qualities that provide a socially set level of teacher's readiness for professional self-realization, through self-determination, self-education and self-discipline. The activity of professional development is characterized as socio-pedagogical, it functions and develops on the basis of its inherent features and conditions of implementation.

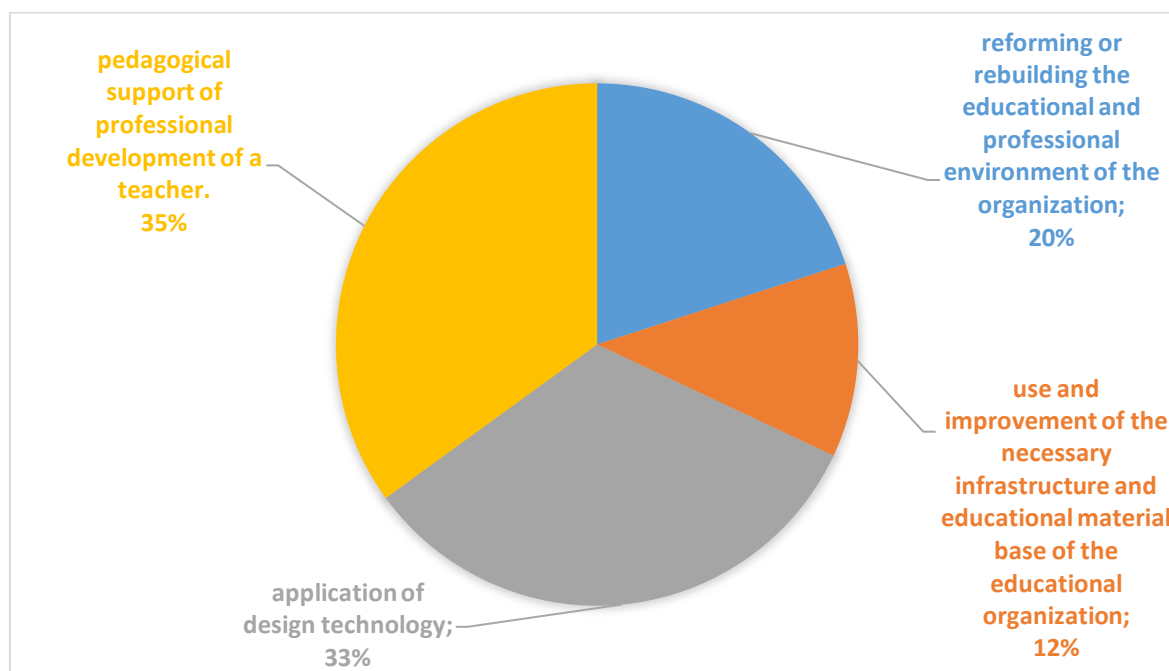


Figure 1: Rating of pedagogical conditions which conduct the effective professional development of specialists in the field of physical education and sports.

2. The basic pedagogical conditions on which the success of the professional development formation of the teacher in physical education depends on are: reforming or restructuring the educational and professional environment of the organization; use and improvement of the necessary infrastructure and educational material base of the educational organization; application of design technology; pedagogical support of a teacher's professional development.

The implementation of these pedagogical conditions in the complex helps to increase the effectiveness of the professional development of the teacher in the field of education in the educational organization.

3. The substantive support of the process of professional development of physical education teachers should be considered as a system object that can be designed. The implementation of the system should be based on the formation of a reflective and innovative environment that stimulates creativity in creating an individual program of professional development. The organization of activities within the framework of meta-educational design will contribute to increasing the effectiveness of professional development.

4. The implementation of the experimental program for the professional development of physical education teachers on the basis of meta-educational design, contributed to a reliable and significant increase in all its components. As a result of the experimental work on the use of meta-educational design for professional development in the conditions of an educational organization, one can state an improvement in terms of professional competence, intensification of personal development and optimization of the physical condition of participants in the study group for the experimental period.

6 Recommendations

The results can be used to increase the effectiveness of professional development and self-development of teachers in physical education and sports, realizing their professional activities within the framework of public and private educational institutions. The technology of meta-educational design can be implemented for the professional development of both teachers in physical education and specialists in sports and in the field of adaptive physical education. They can be useful for postgraduate education and self-education of the teacher and trainer in the context of professional self-realization.

References

1. Bystritskaya EV, Burkhanova IY, Voronin DI, Ivanova SS, Grigoryeva EL. Rhizome-modular teaching of students as a basis of their professional creative self-consciousness formation. *International Journal of Environmental and Science Education*. 2016;11(2):85-94.
2. Ivanova SS. Problem of organization of practice of bachelor on physical culture in multicultural educational organization. *Topical problems of physical culture and sports: Proceedings of the VI international scientific conference*. Cheboxary. 2016;155-160.
3. Kaznacheeva SN, Perova TV. Problems of formation of independent cognitive activity of students. *Journal of Mininsky University* 2017;1(18):3-9.
4. Stafeeva AV, Ivanov SS. Training technology and ways of its implementation in the system of professional physical education of youth of Nizhny Novgorod region. *Modern knowledge-intensive technologies*. 2015;12:145-150.
5. Stafeeva AV, Vorobyov NB, Burkhanova IY, Ivanova SS, Zhemchug YS, Salnikova EA, Anfilova NA. Modern approaches to organizing the evaluation of trainee teachers' academic achievements. *International Journal of Applied Exercise Physiology*. 2019;8(2.1):184-190.
6. Vorobyov NB, Burkhanova IY, Bystritskaya EV, Ivanova SS, Stafeeva AV, Krasnova MS, Petrova LV. Development of Research Skills In Future Physical Education Specialists. *Modern journal of language teaching methods*. 2018;(11):790-797.
7. Grigorieva EL, Belousova KV. Influence of occupations swimming on the functional systems of an organism of younger school students. *Azimuth of Scientific Research: Pedagogy and Psychology*; 2018;7-2(23):49-51.
8. Grigorieva EL, Stafeeva AV. A technique of application of improving walking on occupations physical culture in special medical group with students with chronic diseases. *Azimuth of Scientific Research: Pedagogy and Psychology*. 2018;7-1(11):213-215.
9. Prokhorova MP, Vaganova OI. Design and implementation of an educational event in the training of future managers. *Vestnik of Minin University*. 2019;7(1):4.
10. Burkhanova IY. Subject of metaznania as a target benchmark of educational activity. *Successes of modern science*. 2015;2:50-54.
11. Burkhanova, I.Y. (2016). *Meta-educational Project: Master 's Practice: Educational and Methodological Manual*. N. Novgorod: Minin University.
12. Dmitriev, S.V. (2011). *Anthropokonstrukts of self-awareness and activity. Theses on development of problems of adaptive kinesiology in the system of special (corrective) education. Pedagogy, psychology and medical and biological problems of physical education and sports*, 11, 45-54.
13. Neverkovich, S.D. & Bystritskaya, E.V. (2011). *Educational technologies - from the logic of interaction to the logic of creation*. *Sports psychologist*, 2, 72-77.
14. Saiko EV, Derkach AA. *Self-realization - basis of acmeological development*. Moscow: MPSI. 2010.
15. Konkova GL, Burkhanova IY. *Study of the functional state of the main life support systems of the body engaged in physical culture and sports: Manual*. N. Novgorod: NGPU. 2009.
16. Prokhorova MP, Semchenko AA. Involving of trainees-future teachers of professional training in project activities in the discipline. *Vestnik of Minin University*. 2018;6(2):6.
17. Zankov LV. *Selected pedagogical works*. Moscow: New School. 1996.
18. Svatalova T. Tools for assessing the professional competence of teachers. *Pre-school education*. 2011;1:95-98.
19. Zvereva VI. *Diagnostics and expertise of pedagogical activity of certified teachers*. Moscow: Perspective. 1998.
20. Astemirova ON. *Formation of self-realization needs in students by means of social design*. *University Gazette (State University of Management)*. 2011;25:7-9.
21. Neverkovich SD, Bystritskaya EV. Consciousness, thinking and activity in anthropic education technologies. *Sports psychologist*. 2012;3:13-21.
22. Sorokin II, Kozyrev, OA, Marinich NV. Peculiarities of formation of the need for self-realization and self-improvement in future teachers on physical culture. In the collection: *Peace on the threshold of a new era. How will it be? Proceedings of the international scientific and practical conference: in 2 parts*. Saratov. 2014;51-52.
23. Bruner TI. To the Question of Vocational and Personal Self-Realization. In the Collection: *Topical Problems of Personality Psychology the Collection of Science. Works of the Department of Psychology of Education of the Institute of Psychology*.

- Yekaterinburg. 2013;14-19.
24. Bystritskaya EV, Bukrhanova, IY. Self-Identification and Self-Realization and Student in Anthropically Organized Educational Activities. Journal of the Institute of Human Education. 2015;2.
- URL: <http://eidos-institute.ru/journal>.
25. Shaidullina DM, Ramazanov MR. Self-realization of personality as an actualizing need. Social and humanitarian knowledge. 2011;9:5.