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Training specialists in physical education in the system of additional education

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Abstract

The research considers the issues of professional retraining and advanced training of specialists in physical education for the development of innovative health-improving physical education via the longitudinal study as a method. As a result, a close correlation was discovered between the complexity of group monitoring, implementation of a student-centered approach, the difficulty of compiling sets of exercises accompanied by music, and a lack of experience. In conclusion, the modernization of the existing system of training specialists in physical education in extension and retraining courses with an emphasis on the use of innovative educational technologies is crucial.

Keywords: Postgraduate Education, Program, Pedagogical Experiment.

Formación de especialistas en educación física en el sistema de educación complementaria

Resumen

La investigación considera los problemas del reciclaje profesional y la capacitación avanzada de especialistas en educación física para el desarrollo de una educación física innovadora que mejore la salud a través del estudio longitudinal como método. Como resultado, se descubrió una estrecha correlación entre la complejidad del monitoreo grupal, la implementación de un enfoque centrado en el alumno, la dificultad de compilar conjuntos de ejercicios acompañados de música y la falta de experiencia. En conclusión, la modernización del sistema existente de capacitación de especialistas en educación física en cursos de extensión y reciclaje con un énfasis en el uso de tecnologías educativas innovadoras es crucial.

Palabras clave: Postgrado en Educación, Programa, Experimento Pedagógico.

1. INTRODUCTION

Today, in the context of modernization of education, there are increased requirements for the professional activities of all specialists, including physical education. One of the main requirements is professional development. Today Russia needs highly qualified specialists that are professionally competent, demanded, competitive, able to prove their efficiency with real achievements, capable of continuous self-education, creative, ready to make decisions in the setting of the rapidly changing situation, and to master innovative technologies. Specialist in physical education is a very broad concept that includes various fields of activity, such as program design, technology development, research and

development, organizational aspects, communication with the participants of the educational process, establishing the contacts in the professional community, adopting effective marketing strategies to promote their services, their own physical preparedness, and much more. However, one needs to be focused on continuous learning and retraining in different areas of professional activity to be always up-to-date, to master new technologies. Otherwise, in the rapidly changing world of global informatization and high-tech, the acquired knowledge quickly turns into an outdated template, which leads to the teacher's banality and their lagging behind the modern level of knowledge.

In this regard, it is necessary to create a flexible system of training and advanced training that could respond to changes in the market of educational and health services. All this leads to the demand for all existing forms of training and retraining of specialists and improvement of the system as a whole (Saykina, 2007; Chan, 2018). It should be flexible, open and self-developing; it should correlate with foreign models and take into account the experience of domestic educational systems, as well as meet the pressing problems of modern times. The authors believe that this can be achieved through the dynamic balance of the two main processes is the integral structure of this system: operation and development (Saykina et al., 2017). To achieve this goal, the researchers suggest different educational routes (educational professional programs). One of the promising directions is the development of the system of professional retraining for receiving additional qualification in the different innovative directions of sports and recreational activity.

2. METHODOLOGY

To identify the studied aspects of training at the courses of advanced training and professional retraining, the authors conducted the longitudinal study. It included both the analysis of scientific and methodological literature and a survey of a large number of specialists working in different areas of physical education (more than 2000 respondents on various research issues). Then, the ranking of the most significant difficulties faced by a physical education specialist was carried out, and the directions and ways to improve the activities of training courses were determined.

3. RESULTS

The study engaged 358 specialists in various fields of physical education (educational, therapeutic, military, and industrial). It proved that the leading sources of information about innovations in the field of physical education, fitness industry and sports are short-term courses, seminars, mass media, and communication with colleagues, methodological literature, open events, master classes, methodological meetings, and conferences. The result of the survey Saykina and Smirnova (2015) was that the main educational route for obtaining new knowledge about innovations in physical education and sports, regardless of the work experience, is the extension courses and professional retraining (33%). These sources of knowledge are the most important for professionals who want to stick to the modern trend. Specialists in physical education take a significant part of the information from the media (20.1%). 18.6% of

respondents receive various information about new products from colleagues. 12.2% of respondents raise the level of their knowledge by reading methodological and journalistic literature. Approximately the same number of specialists prefers open events (9.7%) and methodological meetings.(%6.5)

Katrich (1993) noted that teachers at educational institutions of new type recognize the need to work in a new way, although they often cannot explain what it means. The main motivations for innovation, according to the survey, are: the belief that it would increase the performance (as noted by 55% of respondents); the desire to encourage students to be more active in the educational process (35%); meeting the social requirements (8%); the desire to be no worse than others (2%). The rapid development of commercial activities in sports, health, education, and other services imposes very strict requirements to a specialist's knowledge, skills and abilities. Today, however, many commercial organizations present the material superficially and in a very short time, and educational organizations give mainly theory on the extension courses. Thus, according to specialists, there is a lack of knowledge for the implementation of innovative technologies or creative development. The problem at this stage is very complex, urgent and needs to be solved to eliminate the existing contradictions between the requirements for the professional qualification of a physical education specialist and the actual level of their knowledge and skills acquired during the courses. Studies show that short-term courses should be conducted only for a narrow profile, whether it is a program material for the students of a certain age or

the organization and methodology of one of the innovative areas, such as fitness, etc.

The main purpose of extension courses is the formation of professional competence in a specialist in a certain field of knowledge and modern areas of physical education and health activities, strategies of personal and professional growth on the basis of general cultural and professional competencies, providing them with unique, modern knowledge, skills and innovative technologies of recovery, upbringing and education for further professional activities. Each of the areas should have a wide variety of programs for different groups involved, which include original ideas, innovative techniques and technologies tested in practice; modern knowledge in physical education and sports, the use of which provides great opportunities to successfully, creatively and effectively perform the work. It is known that the guaranteed success of the development and functioning of training and retraining system is achieved through:

- Planning and successful design;
- Monitoring of the market of educational, health, and sports services and rapid response to changing conditions;
- Smart ranking according to the degree of importance of the goals of the educational process in each link of the system;
- Establishment of operational information and feedback system;
- Depth and comprehensiveness of pedagogical analysis, timely assistance in the prevention and elimination of errors;

-Availability of the required psychological climate in each link of the system ;

-Qualification, experience, professionalism, and creativity of teachers.

Over the years, various studies have been conducted Saykina et al. (2017) to determine the factors of success and demand, and to improve the system of training courses. More than 900 people who studied by different directions and programs during these years took part in the pedagogical research. Their direct participation in the experiments and questionnaires, as well as their comments, contributed to the optimization of the learning process, which made the courses more popular and up-to-date. In many ways, the purposes of course attendants determine the training program. A survey of students was conducted in different years to specify the program (Table 1). According to the results of the survey in 2004-2005, it was revealed that most specialists came to the courses in order to improve their skills (33%), or to replenish the stock of knowledge on innovative technologies and techniques (32%).

Table 1. Experts' view of the purpose of coming to extension courses

Question	Answer	Results (%)			
		2005	2007	2009	2016
Indicate your purpose of coming for extension course	To replenish motor activity	12.5%	3%	3%	3%
	To replenish knowledge	31.35%	12.05%	12.05%	12.05%
	To improve qualification	33.05%	39.5%	39.5%	39.5%
	To get a new specialty	22.03%	45.45%	45.45%	45.45%
	To get points for certification				
	To get additional education	1.07%	-	-	-

The questionnaire survey conducted recently showed that the most important are the goals of obtaining a new specialty and training, which indicates a more conscious choice of getting a new specialty. The survey raised the question about the priority tasks to be solved at the end of training courses with a certain program of a particular direction of physical education. As a result, the main task was to learn to teach different areas of physical education methodologically correctly (29.2%). The second variant was to get to the modern level of training (23.36%). The task to improve their practical skills by learning new technologies was in third place (18%). The respondents put replenishing their stock of theoretical knowledge for successful practice in the fourth place (15.58%), and the aim to learn something new in the practice of sports and recreation activities was at the fifth place (13.6%). Extension courses always take into account the wishes, interests, motor training, and work experience of the attendants and make corresponding adjustments to the training programs.

The answers to the question about the forms of training courses and their importance, the distribution of the teaching hours in the curriculum are of particular importance. The respondents believe that one of the main forms of training is practical training; therefore, they should have more teaching hours of practice. The second place belongs to methodological-practical training in the ranking of importance and, the number of teaching hours. Lectures are not the main, but quite a significant form of training. Theoretical knowledge should be narrowly focused, deep, specific, and related to the subject of the training courses. The study conducted by Nikitushkina and Kalashnikov (2005) among the attendants of advanced training courses showed that despite the fact that the normative documents

need 72 hours for training, 49% of specialists clearly noted this is not enough. Our survey of physical education specialists also confirmed this fact. The respondents pointed out that there should be more practical material, and lectures could be for self-study. They also noted that creative and specific tasks should be given in full volume, since they develop professional skills and the psychophysical apparatus of specialists in physical education and sports. Attendants consider teaching practice insignificant. This is due to the fact that many of them are working specialists, therefore they believe they have sufficient practical experience. Another case is students who believe that they would have enough pedagogical practice since it is included in the program of basic training in the institutions of physical education.

The study of methodological literature is one of the most important forms of training of any specialist, but it was insignificant for the respondents. This may be because of the very fact that starting the course implies preferring learning through direct communication with teachers rather than through other sources of training. At the same time, this does not exclude learning and buying the new methodological literature. Making home tasks takes the penultimate place, and tests and control tasks – the last one. The authors believe that this shows that the independent and test forms are paid insufficient attention, although such tasks will aid the development of independent work in the future. Currently, educational institutions successfully introduce innovative health and fitness technologies that contribute to the efficient development of motor skills, increase students' physical preparedness and interest in physical education lessons. Many professionals want to attend training courses and learn new

fitness technologies, they experience certain difficulties in choosing music and having the ability to work to music. However, the results of the survey conducted from 2007 to 2017 (Fig. 1) showed that a significant number of respondents used music in physical education, but different professionals have different attitudes to this aspect of their activities.

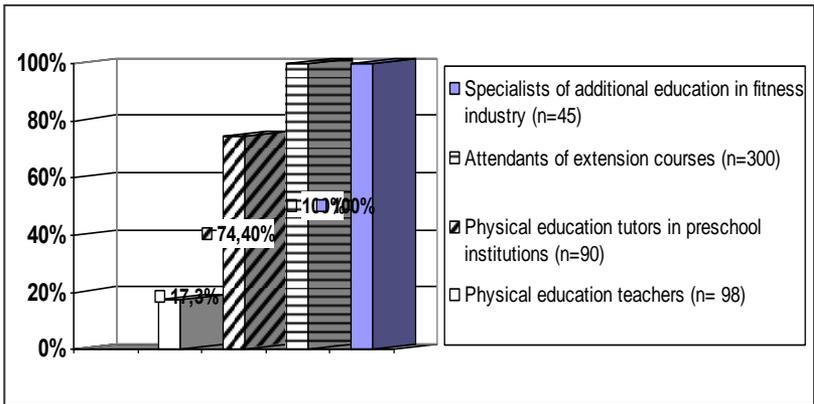


Fig. 1. Results of the survey of physical education specialists on the use of music in the lessons of physical culture

It was determined that 100% of specialists of the fitness industry and additional education use music in their lessons. The fact is explained by the specific feature - background music (Saykina, 2007). The same result was obtained in a survey of the extension courses attendants in children's fitness (100% of respondents). Slightly fewer physical education tutors in preschool institutions (74.4%) said that they use music in the classroom. Most of those who responded negatively indicated a low personal development of musical and rhythmic abilities and, accordingly, the discomfort from performing exercises to music (47.8% of those who did not use music). A less significant part of the respondents believed that

the exercises to music in the kindergartens are in sufficient number in the music classes in the section musical and rhythmic education (28.8%).

Teachers of physical education, in turn, to the least include music in the lesson (only 17.3% of respondents), which could be explained by the age-related features of the majority (mainly people over 45). Accordingly, they feel discomfort because of the constant sound and unnecessary efforts to find and select the music. However, only 28.6% pointed at this reason. Most teachers who did not use music (52%) noted that they preferred traditional lessons with the voice of the teacher as the only sound in the classroom apart from the whistle. The rest indicated other reasons. This is mainly due to the level of professional training in this aspect of professional activity. This was justified by the results of a survey of 703 specialists from 2007 to 2011. A significant number of respondents pointed out that they had difficulties in selecting and using music in their work (Fig. 2) (Smirnova and Kadyrov, 2011).

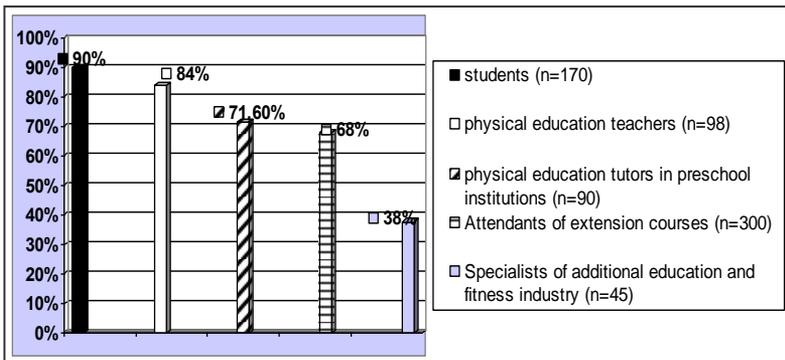


Fig.2. Results of the survey on difficulties in selecting and using music in the classroom

However, music is one of the specific features of fitness programs, it is actively implemented in almost all types of physical education at the current stage of development. Therefore, this aspect of professional skills is very important in the setting of the urgent need for the most efficient use of all the studied and used tools to achieve maximum impact on those engaged in physical exercise (Kodzhaspirov, 2018; Sizova, 2017). The attendants should master not only the necessary ability to select music and move in accordance with it, but also to know and take into account the powerful potential of its impact on the human body and mind (Brusilovsky, 1985; Dubrovin, 1994). The fact that music has a wide range of effects has been known to mankind since ancient times and was scientifically proven by studies of Russian and foreign scientists. The physiological studies revealed the influence of music on various human systems. It has been proved that hearing music accelerates heart rate, reinforces the pulse; breathing and the production of certain hormones depend on the height, strength, sound and tone of the musical stimuli. The breathing and heartbeat rates varied depending on tempo and tone of the musical composition (Alvin and Warrick, 2004; Hughes et al., 2007; Nilsson, 2009; Patel, 2009; Petrushin, 2000; Sutoo and Akiyama, 2004).

Many authors studied music in physical education and noted that the musical accompaniment contributes to the improvement of efficiency, development of coordination of movements, teaches the sense and understanding of rhythm, and the corresponding beauty and expressiveness of movements, as well as musical taste. It is also proved that music in the classroom helps to overcome the growing fatigue and helps to avoid monotony and to accelerate the process of mastering the movement technique. With all its obvious positive potential, music is a

very complex, specific and multifaceted instrument of influence on the human body and mind. Improper use cannot only complicate the physical exercise, but also have a negative impact on the psychophysical and emotional state of the students (Smirnova and Kadyrov, 2011). However, the results of a survey showed that not all respondents had information about the impact of music on people and a variety of opportunities for its use in physical education (Fig. 3). Only 4% of the respondents know and take into account the mechanisms of music (Smirnova and Kadyrov, 2011).

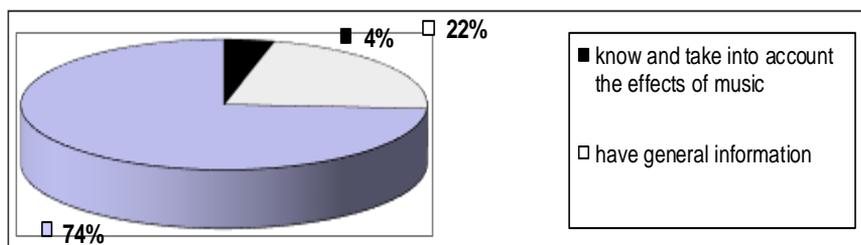


Fig. 3. Awareness of physical education specialists about health-improving capabilities of music on an organism and mentality engaged in physical exercise

Accordingly, it can be concluded that there is a lack of awareness of physical education specialists in music in the classroom. Thus, it is obvious that the attendants of advanced training courses need to be trained in the competent and purposeful use of musical accompaniment, taking into account the diversity of its impact. The result of the analysis of scientific and methodological literature and dissertation research (Filippova, 2002; Kazakevich, 1999; Khozyainov et al., 2005; Rostova and Stupkina, 2003; Sidneva, 2000; Sinitsyn, 2003; Streletskaya, 2007)

and a survey of physical education teachers, interviews with university teachers, students, coaches, fitness instructors, and attendants of extension courses and retraining from different cities of Russia (over 800 people) identified most often challenges faced in their professional activities. The identification of these difficulties allows expanding the knowledge, simulating various situations that teachers may face in the process of training. Based on the survey, all identified difficulties were grouped into six types. These include:

- 1) Implementation of pedagogical control and regulation over physical activity (pedagogical control over the students and their health; dosage of physical activity, its volume and intensity);
- 2) Exercises techniques (working opposite hand, gestures, voice, count, emotions, self-confidence, the ability to organize and lead, motor reserve, improvisation, competent use of musical accompaniment);
- 3) Method of making exercises (the ability to make a variety of complexes that match the age of the students, their motor abilities, physical development, musical accompaniment, as well as solve certain problems and correspond to the parts of classes (preparatory, basic, final);
- 4) Training methods (ability to divide the exercise into parts, select the preparatory exercises, identify and correct the mistakes, perform exercises to the music) ;

- 5) Organization of students and implementation of lesson planning (use of the group method and differentiated approach in classes, making plans and programs) ;

- 6) Student-centered approach (the ability to set up the contact and take into account the psychophysical condition of each student and their features).

Depending on the experience, the nature of the difficulties varies. Experienced specialists, trainers, instructors, and others working for more than 10 years, in the first place put the difficulties with organizing and planning the classes, the second place was for the methodology of making complexes, the third was the training method. The fourth place was for a method of teaching lessons, the fifth place was for pedagogical control. The student-centered approach had the least difficulties and took the sixth place. Young professionals and students working less than 2-3 years identified the difficulties that they met immediately in the first months of work. The first place was for student-centered approach, finding and preventing the mistakes during the lesson. The second place was given to pedagogical control and regulation of physical activity. The method of compilation (the ability to compose compositions and routines according to the tasks of the lesson and its parts) was put in the third place. In fourth place, the respondents put the methodology of organization and planning the classes (the ability to plan and organize classes). The fifth place was taken by the teaching method. As the respondents indicated, they met fewer difficulties in performing exercises to music, the ability to improvise, demonstrate exercises, lead and conduct the classes

emotionally. That is, the sixth place is occupied by the methodology and improvisation of exercises.

In turn, teachers of physical education, coaches, heads of physical education of preschool institutions, who have been retrained put the difficulties associated with the method of preparation of complexes in the first place. The second place comes to improvisation and methodology of classes, the third place is for the training method. Difficulties with the implementation of pedagogical control and regulation of physical activity were in the fourth place. The method of planning and organizing classes causes fewer difficulties and occupies the fifth place. Experienced teachers meet no difficulties in implementing a student-centered approach; they have put this problem in sixth place. The presented results make it clear that the method of making exercises is one of the most difficult in practice for all specialists. Even experts put the methodology of organizing and planning the classes in the first place, giving it great importance. At the same time, less experienced fitness specialists seem to show insignificant importance to long-term planning, not fully realizing that the result and performance depend on it. Instead, they have difficulties in implementing a student-centered approach, which directly depends on the experience. The complexity of monitoring the group and implementing the student-centered approach is related to the lack of experience ($r = 0.690$) and the problem in compiling competent sets of exercises ($r = 0.918$). The lack of experience has a close relationship with the same problem in compiling the complexes ($r = 0.828$). Based on this, the program and teaching methodology of extension courses for teachers of physical education were amended. To provide an efficient development of

attendants of the program Innovative technologies in physical education, the following positions were developed:

- The structure of the training sessions, including lecture, practical (teaching exercises on composition), methodological-practical (teaching the teaching methods), and control (including the implementation of independent tasks) material; a specific number of hours for each section of the program;
- Tests with three variants of answers for controlling the theoretical knowledge of listeners, problem tasks to solve pedagogical situations, test questions on the definition of professional knowledge, abilities and skills of specialists in physical education;
- Creative, special and situational test tasks aimed at improving professional and pedagogical skills in the conducting, training and organizing classes, the development of musical and rhythmic abilities of the attendants, expressiveness and coordination of movements, self-confidence, increasing the motor reserve;
- Various innovative technologies and modern forms of classes organization: roundtables, debates, quests, interactive forms (distance learning technologies (ICT); reflective technologies; moderation technology; design method; the technology of organizing the students' independent work, etc.).

To determine the efficiency of introducing new technologies in the learning process, the authors conducted the pedagogical experiment. Throughout the course, the specialists performed various control tasks, reflecting the level of acquired professional and pedagogical skills of a specialist in physical education. All test tasks were evaluated on a five points scale by a group of experts. The following skills were evaluated: the ability to conduct fragments of classes; the ability to correctly demonstration; the ability to combine movement with music; to carry out a student-centered approach. The ability to teach exercises was assessed separately. The attendants should have demonstrated the ability to split the exercise into parts, to select the preparatory and lead-up exercises, and to collect them into a single one again. The ability to make the composition complexes determined the abilities to select exercises in accordance with the tasks, the age-related features and the background music. When determining the ability to improvise, the motor reserve of future specialists was checked .

5. DISCUSSION

The research defined the average scores of professional and pedagogical skills of the attendants of the control group (traditionally trained) and the experimental group (acquainted with new technologies, leveling the selected professional difficulties) of the pedagogical experiment (Table 2).

Table 2. Assessment of professional and pedagogical skills of specialists of physical education at the end of extension course

No.	Professional and pedagogical skills and abilities	Control group (X av. ± m)	Experimental group (X av. ± m)
1	Ability to perform the right demonstration	4.38 ± 0.08	±4.45 ± 0.08
2	Ability to organize, to lead (emotions, professional image, presentable appearance)	3.34 ± 0.15	±4.4 ± 0.08
3	Ability to hear music and combine exercises to it, reflecting the nature of the musical accompaniment	4.38 ± 0.06	±4.25 ± 0.06
4	The ability to carry out pedagogical control, to regulate physical activity	3.5 ± 0.12	±4.3 ± 0.08
5	Ability to give exercises	4.6 ± 0.08	±4.45 ± 0.08
6	Ability to teach (from simple to complex, to be able to split an exercise into parts and connect them)	3.5 ± 0.12	±4.6 ± 0.08
7	Ability to improvise (motor reserve)	4.3 ± 0.08	±4.3 ± 0.08
8	The ability to make sets of exercises in accordance with the tasks and age-related features	4.19 ± 0.12	±4.6 ± 0.05

The obtained average indicators of pedagogical skills of students in the experimental group turned out to be better than in the control group. At the same time, the assessments were not high enough. The authors believe this happened due to insufficient training time (72 study hours). The making a large number of special situational and creative tasks, which allowed more competent and confident conducting the classes, is very significant in the development of professional skills. A regular check of

homework and independent work made it possible to replenish the motor reserve and to achieve a more free improvisation and replenishment of the stock of theoretical knowledge with innovative technologies.

At the end of the course, the attendants were evaluated (by a 5-point scale) to determine the efficiency of training students in Innovative technologies in physical education. The survey showed that the adjustments made to the training program were chosen wisely. The general content of the practical and theoretical materials of the program of the experimental group and its training were higher than in the control group. It seems that the adjustments made to the program enabled the students of the experimental group to master the proposed training material more efficiently while receiving positive emotions for their creative activity (Table 3).

Table 3. Evaluation of the content of the program material of the extension courses for experimental and control groups

No.	Content of the program material	Control group (X av. ± m)	Experimental group (X av. ± m)
1	Lectures on theory and methodology	4.0 ± 0.15	4.5 ± 0.05
2	Teaching methodology	3.8 ± 0.15	4.6 ± 0.05
3	Methods of conducting the lessons	3.6 ± 0.15	4.4 ± 0.06
4	Content of practice material	4.4 ± 0.06	4.7 ± 0.05

Training courses for their attendants is a purposeful development of the relevant qualities and abilities in the process of self-improvement of professional skills. Medvedeva and Terekhina noted: "...if professionals are trained by the system of professional education, only the obsessed,

creatively active, capable of implementation become masters of their profession; that is, the professionals are those who realize their active human potential" Medvedeva and Terekhina (2016: 20), those who constantly improve themselves.

6. CONCLUSION

The main conceptual directions of functioning and development of the system of training and professional retraining in physical education, its efficiency is determined on the basis of large practical experience, are :

- Providing opportunities for various forms of training, the wide range of training areas, programs, terms of training, cost, availability of mastering educational material for specialists of various specializations, age, and gender;

- Implementing new ideas, original techniques, knowledge, technology, and modern equipment;

- Quick response to demand ;

- Research and development activities of the attendants, experimental testing of each new program;

-Expanding opportunities for the attendants of extension courses and professional retraining in selecting the educational modules and drawing up individual educational routes;

-Feedback system and timely information: questioning, testing;

-In-depth introspection;

-Efficiency (professional development, realization, additional income) ;

-Predictability (development prospects, distance learning, in accordance with the new socio-cultural demands and current trends ;

-Personnel (professionalism, creativity, quality, and image).

Summarizing the above mentioned the modernization of the existing system of training specialists in physical education in extension and retraining courses with an emphasis on the use of innovative educational technologies is crucial.

7. RECOMMENDATIONS

The presented results may be used in extension courses and retraining of higher education institutions for training specialists in

various health areas of physical education and fitness, as well as for the practice of working with students in physical education profiles.

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