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PROFESSIONAL-APPLIED PHYSICAL TRAINING AND MENTAL TRAINING FOR VOCALISTS IN ART EDUCATION INSTITUTIONS

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The doctoral thesis and the summary can be consulted at the Library of the State University of Physical Education and Sports and on the ANACEC website.

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CONCEPTUAL GUIDELINES OF RESEARCH

The actuality and importance of the topic addressed. Modern society, so complex and constantly changing, imposes high requirements on the quality of training of future specialists in all fields of activity. A future specialist must possess professional knowledge, skills, personal qualities important to the given profession, to develop a spiritual and creative potential, as well as stable psychophysical qualities, which maintain good health to be achieved in future professional activity. The formation of such a personality is - the major objective in art education institutions in our republic [2, 4, 9].

For students of music specializations, who decide to become professionals, poor health and low psychophysical availability become an obstacle in improving professional skills, leading to the emergence of occupational diseases [5, 8, 10, 20, 22].

The professional activities of specialists in the field of culture and arts are multidimensional. This includes organizational, pedagogical works, artistic and creative performances with people. The profession of a musician, from the psychophysical requirements for the individual, is among the most complex. Along with musical skills, musicians should have developed psychophysical qualities: reactivity, flexibility, coordination of movements, static endurance, strength, dexterity, balance, mobility and stability of nervous processes, the ability to actively self-regulate mental state, vascular, respiratory musculoskeletal system. In this sense, it is necessary to consider the important role of professional-applied physical culture in the training of future specialists in the culture of musical specializations [1, 7, 12, 13, 15].

Of particular importance for future specialists in the artistic field, including musical specializations, is the *professional-applied physical training* (PAPT) in the educational process in the profile institutions. Mastery of a large amount of scientific-theoretical, humanitarian and professional information gives the possibility for students of musical specializations to develop skills that are related to sports and PAPT [11, 13, 16, 17, 18, 19].

Thus, the relevance of the study is determined by the contradictions between the need of modern society for healthy specialists and the deterioration of graduates' health; between the specific requirements imposed by the professional activities on the psychophysical qualities of the future specialists in the culture of musical specializations and the insufficient satisfaction of these requirements during the training process in the educational institution; between the need to form the professional-applied physical culture of the future specialists and the insufficiency of the methodological support for this process; between the possibilities of physical culture and sport in the formation of a professional physical culture applicable to future specialists and the insufficient use of these possibilities [1, 3, 6, 14]. Thus, the professional-applied physical training of vocalists,

in conjunction with practical experiences, must be internalized in value systems and externalized in the form of physical-intellectual, affective and effector-operational-motor attitudes.

In the context of the above, it should be mentioned that professional-applied physical training for vocalists will contribute to stimulating interest in science, the formation of logical thinking, critical thinking, the development of intellectual abilities of subjects in accordance with the requirements of modern stage and obviously in accordance with personal aspirations.

The present study was carried out with the support of students and master students from the Academy of Music, Theatre and Fine Arts (Chisinau, Republic of Moldova), future specialists who tend to become valuable professionals in the field of vocal art.

The **aim of the research** is to streamline the process of professional-applied physical training of vocalists in higher arts institutions.

Research objectives:

1. The analysis of the theoretical-methodological bases regarding the aspects of the professional-applied physical training of the vocalists in the higher institutions of artistic education treated in the specialized literature and enunciated by the practice of the professional training of the specialists in the field of vocal art and interpretive mastery.

2. Elaboration and argumentation of the didactic contents with orientation towards the professional-applicative physical training of the vocalists in the higher education institutions of artistic profile (in the example of the Canto specialty).

3. Theoretical-experimental argumentation of the efficiency of the didactic content applied in the professional-applicative physical training of the vocalists in the higher education institutions with artistic profile.

Research hypothesis: it was assumed that the elaboration and implementation in practice of the didactic contents with orientation towards the professional-applicative physical training of the vocalists in the higher education institutions of artistic profile will contribute positively to the increase of the quality regarding the training of the future vocalist: on the mastery of the actor's mastery, all due to the professional-applicative physical training.

The physical well-being of students (in the example of Canto speciality) will be effective if the following conditions are met: identifying the requirements imposed by professional activity on the professional-applied physical culture of future vocalists (knowledge and skills of professional-applied physical culture, psychophysical qualities, motivation motor activity); improving the content, forms and methods of physical exercise.

Synthesis of the research methodology and justification of the chosen research methods

The scientific research methodology is generated by the conceptual approach to the professional-applicative physical training of vocalists in higher education institutions of artistic profile as a system.

The scientific research methods used: analysis and generalization of data from the specialized literature; the method of studying the documentary fund; method of pedagogical observation; the method of sociological investigation; the method of testing, the method of pedagogical experiment; statistical-mathematical method of data processing.

Scientific novelty and originality consists in the elaboration and implementation in the didactic process of professional training of the future vocal soloists of the content of the professional-applicative physical training as a component part of the general culture, which determines the specificity of the professional activity and of the performing arts through the requirements imposed by the degree of knowledge, skills, abilities, psychophysical qualities, motivational attitude and value towards physical exercises, which is particularly important for increasing the psycho-motor potential of the vocalist to successfully achieve the presentation in scene.

The important scientific problem solved was aimed at determining the theoretical and methodological foundations of streamlining the process of professional-applicative physical training of students from institutions of higher artistic education (Canto specialty), by elaborating the professiogram, curriculum, theoretical-praxiological model, as well as the mixed mental training, oriented to the development of psychomotor applicative capacities, but also of the mental ones vocalists at a high level.

The **theoretical significance** of the research consists in the elaboration and implementation of the professional program, the curricular program focused on PFPA, which aims at mental training for students from higher artistic education institutions (Canto discipline) to ensure high professional activity.

The **applicative value** of the research consists in the elaboration and introduction in the practice of the educational process of the future vocalists of the methodology of professional-applied physical training, represented by the special exercise modules (strength, respiratory and mental training) for canto speciality students. At the same time, a calendar of the training process for the entire study period was developed and implemented, which allows adapting the volume and intensity of the training sessions, taking into account the concert activities and the conduct of artistic computer services.

Implementation of scientific results. The research results were applied during the study process for the students of the Canto specialty from AMTAP, as well as to the students from the

special secondary education institutions of culture and arts (“Alexei Stârcea” School of Arts, Chisinau).

Some results of the study can be found in 10 scientific papers published in various journals and collections of scientific events in the country and abroad, namely in: Annals of Stefan cel Mare University of Suceava, Physical Education and Sport Series; Journal The Science of Physical Culture; Journal of the Study of Arts and Cuturology: history, theory, practice; Materials of the International Scientific Congress "Sport. Olympism. Health" (Chisinau, 2016, 2017); International Scientific Conference "Traditions, realities and perspectives of the physical culture development" (Chisinau, 2018).

THEORETICAL-METHODOLOGICAL BASES REGARDING THE PROFESSIONAL-APPLIED PHYSICAL TRAINING (PAPT) OF THE VOCALISTS

(basic content of chapter 1)

Starting from the positions of the systemic approach, it appears that PFPA is part of physical education, which is done taking into account requirements, type of activity, etc. PFPA can be carried out during the training session, but also outside of class hours. The essence of PFPA is the optimal use of resources, methods and forms of physical training, in order to achieve and maintain mental and physical qualities, for which the requirements are high in the process of learning the profession. The basic objective of PFPA is to achieve the level of human psychophysiological training for a successful career.

In their turn, the objectives include:

1. Development of the qualities necessary for the professional activity.
2. Training and improvement of applied motor skills.
3. Increasing the body's resistance to external influences on working conditions.
4. Cultivating the psychological qualities specific to the profession.
5. Increasing functional stability and adapting the human body to the adverse effects of working conditions (psycho-emotional stress, vibration, noise, etc.).
6. Promoting physical culture, strengthening the psyche.

Physical education accompanies the vocalist throughout his conscious life (in high school, secondary and higher education institutions) and how conscious he (the vocalist) relates to the formation of his own culture, including physical culture, does not depend only on health - physical, mental and social, but also by the success of the professional. The misunderstanding and underestimation of the importance of physical culture by vocalists, on the one hand, and the unavailability of most teachers working in higher education institutions to solve the problems of vocational training - on the other hand, leads to the fact that the potential of physical training

practically does not is used at fair value. Therefore, vocalists in physical education classes face a number of problems that do not allow the full and effective use of the full potential to improve the quality of the educational process. The first problem is the poor educational and methodological provision of the object "Physical education" in the profile institutions. Inadequate teaching support for the educational process of physical education of vocalists is reflected in the realization of the modern principle of vocational high school - which consists in improving the quality of training of a highly qualified specialist. The model curriculum of physical education for higher vocational education provides a general aspect regarding the direction of physical education of students and practically does not reflect the specific objectives of professionally oriented physical training in educational institutions. Due to this, the student does not fully receive the minimum information about potential opportunities of physical culture, namely: preserving and strengthening health, diagnosing and preventing occupational diseases, integrating physical and professional training (in its functional part), minimizing the negative effects of work, adaptation to physical activity and psycho-emotional stress, etc. Unlike vocal skills, functional signs that manifest in movement (gestures, facial expressions, posture, presence on stage) are formed in the process of training young singers in different stages of work based on integrated training (correct posture, spatio-temporal coordination, articulation apparatus, vocal apparatus, vocal-motor coordination: coordinated combination of movement and voice, emotionality, verbal, visual, auditory and muscular memory, sphere of communication) mastering the techniques of acting through the spectacular discovery of the artistic image.

Chapter 1 concludes with the report on the need to connect physical exercises to the training of vocalists in specialized training activities.

METHODOLOGICAL-EXPERIMENTAL FRAMEWORK FOR RESEARCH ORGANIZATION AND ANALYSIS OF THE TEACHING CONTENT WITH ORIENTATION TO THE PROFESSIONAL-APPLICATIVE PHYSICAL TRAINING (PAPT) OF VOCALISTS

(basic content of chapter 2)

This chapter includes: 1. Research methodology. 2. Research stages.3. The opinion of the specialists in the field regarding the use of professional-applicative physical training and mental training in artistic education institutions. 4. Elaboration of the professional program for vocalists. 5. The content of the didactic, curricular-university activities of the vocalists within the educational instructional process.6. Methods of heating vocalists by means of PAPT. 7. The integrated theoretical-praxiological heating model of vocal artists. 8. Mixed model of TM and PAPT.

Research methodology

To achieve the established objectives of the research, the following set of **methods** was used:

- analysis and generalization of data from the literature;
- method of sociological survey (questionnaires, interviews, conversations);
- method of pedagogical observation (recording, verbal description, photography, video filming);
- method of control exercises (functional and physical): physical performance of the body;
- PWC170 test, kgm / min, kgm / min / kg (absolute and relative);
- spirometry, ml;
- pneumotahometry method, l / s .;
- Ștanghe test, s .;
- Ghenci test, s .;
- running 100 m, s .;
- running 1000 m, s .;
- shuttle running 10 x 3 m, s .;
- long jump from the spot, cm;
- free swimming 100 m, s .;
- the Spielberger-Khanin test;
- mathematical-statistical data processing and their graphical presentation.

Research stages

- **During the first stage of preliminary research** (2016-2017) there was a generalization of the factual material, of the curricula in the specialty of Canto, of the way of teaching the theoretical and practical course, of the systems for evaluating the theoretical and practical knowledge of the students in this specialty, the need to introduce a PAPT program in the curriculum.
- The analysis of the pedagogical, methodical and specialized literature on the thesis topic, allowed us to establish and argue the basic aspects of the content of the activity of optimizing the training of students at the Faculty of Music, specialty singing and jazz singing, to establish the need the introduction of a new, broader and better structured Model and the elaboration in the context of PAPT of a study program focused on mental training methods.
- The difficulties faced by teachers and students in the process of teaching theoretical and practical knowledge, the objective evaluation of this knowledge, the way of teaching theoretical knowledge and the optimization system used for grading theoretical and

practical knowledge were studied, the basic parameters and the assessment criteria of this activity were established.

The second stage – experimental-formative (2018-2019). In order to adopt the instructive-educational process and to optimize the system of teaching theoretical and practical knowledge in the Canto specialty, the first variant of the program for optimizing student training through the method of using PAPT and mental training was introduced. At this stage, the level of theoretical and practical knowledge of the students was established through the introduced program following the use of the course by the method of analyzing the quality of the results obtained by the students of the experiment group compared to the students from the control group.

In the third stage, finishing (2019-2021), the data of the pedagogical experiment were systematized and processed. Specifically, the assessment of the elaboration was carried out:

a) a more efficient curriculum;

b) a guide;

c) also, the functionality of the operability of the program for optimizing the students' training through the use of PAPT and mental training in accordance with the curriculum was assessed.

The results of the assessment were processed by mathematical-statistical methods and interpreted by the respective analytical comparisons aiming at the qualitative levels obtained by the students of the experimental and control groups in their preparation.

As a result of the results obtained from these researches, the curricular modifications proposed by us were implemented in the instructive-educational process of the Canto discipline, the course in new format, having in its structure the optimized program of theoretical and practical training of students of artistic education institutions by using PAPT and mental training.

The partial research materials were communicated during the scientific events (SUPES, Chisinau, 2016, 2017, 2018; AMTFA, Chisinau, 2018, 2019, 2020, 2021).

Some articles published in specialized journals serve as methodological material among specialists in the field, and the theoretical course and especially the program for optimizing student training through the use of PAPT and mental training, are currently used at the faculty.

The opinion of the specialists in the field regarding the use of PAPT and mental training in the art education institution

In order to obtain information on optimizing the content of the curriculum in the specialty, Canto and to improve the PAPT process of vocal students from the Faculty of Music Art in the Higher Artistic Education System (AMTFA) in Chisinau, a sociological survey was conducted. established the thesis research strategies:

Question 1. **Should PAPT be used before voice warm-up?**

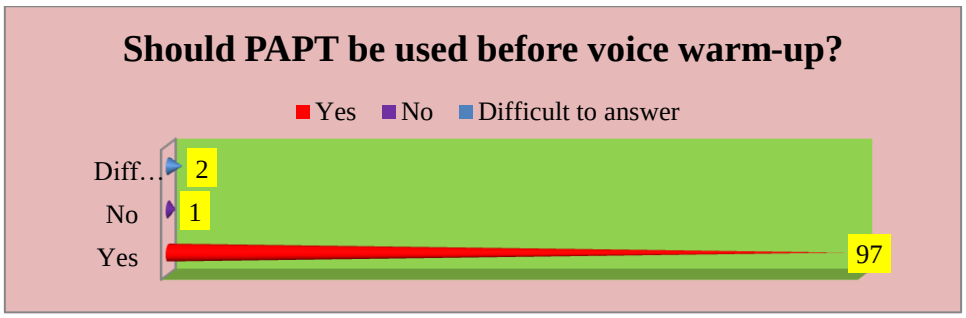

Fig. 1. Professional-Applied Physical Training is required before vocal warm-up

Almost all respondents are of the opinion that it is necessary to use PAPT before vocal warm-up (97%), within the discipline - Canto (Figure 1).

Question 2. **Is it necessary to elaborate the professional program of vocalists?**

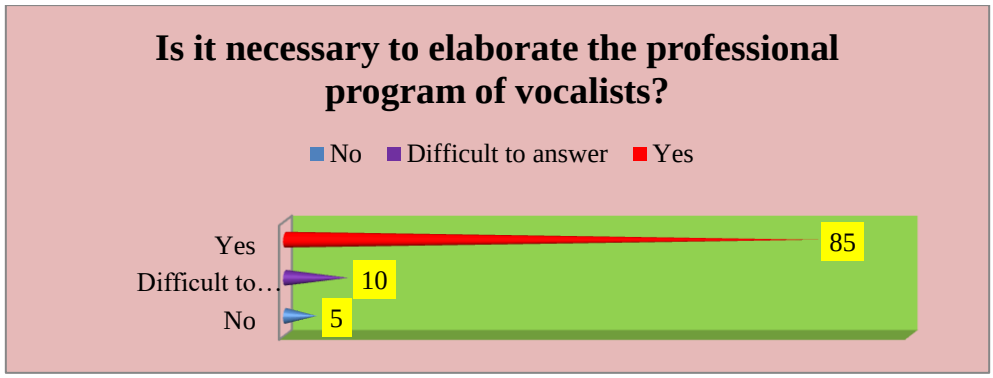

Fig. 2. It is necessary to elaborate the professional program of vocalists

Most respondents are familiar with the need to develop the professional program of vocalists (85%), which certifies the research application of the professional program (Figure 2).

Question 3. **Is it important to use mental training in PAPT?**

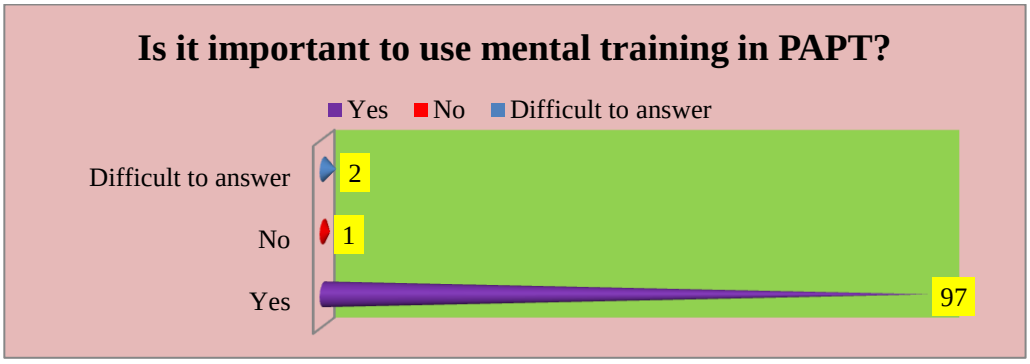

Fig. 3. If it is important to use mental training in PAPT

The interviewed specialists mentioned as appropriate the idea of using mental training as a method of training vocalists (97%) (Figure 3).

Question 4. **Is the "PAPT and mental training" Guide necessary?**

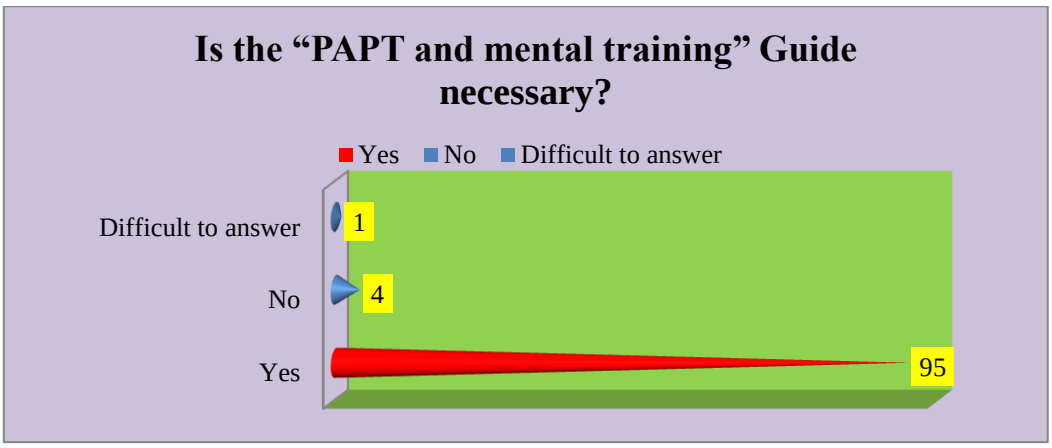

Fig. 4. The “PAPT and mental training” Guide is required

Most respondents believe that it is necessary to apply the Guide "PAPT and mental training" in the training of vocalists (95%) (Figure 4).

Most respondents are familiar with **the need to develop a professional vocalist** (85%), which certifies its application.

The percentage of respondents regarding the need to develop the Curriculum focused on PAPT was 92%, which shows that both specialists and graduates requested the change of the old curriculum.

It is clear that with the need to change the curriculum, it will be necessary to develop a guide that will include PAPT means in line with the new program (curriculum).

Elaboration of the professiogram

From our research point of view, the professiogram acquires value only insofar as certain competencies of the profession can be educated, influenced and optimized through educational contents of professional, creative training. The main way to describe a profession is through a professiogram, which is currently used to choose a profession. In this case, it is a description of a system of characteristics that presents a particular profession and includes a list of requirements and rules imposed by that profession or specialty on an employee. Based on the examination of the literature in the field [21, 23, 24, 25], and the opinion of specialists, we developed the following table (Table 1).

Table 1. Professiogram for vocalists

General characteristics			
	Name of the profession	**Singer**	
	The dominant method of thinking	**Adaptation, coordination**	
	The field of basic knowledge and their level	No.1./ high level	**Music history, culturology, solfeggio, music theory, speech art, pedagogy, actor art, psychology, dance art, anatomy, foreign languages, arts pedagogy, studio work**
		No.2./very high level	**Vocal technique, physical training, sense of rhythm, diction, correct breathing, hearing sensitivity**

		No.3./theoretically high	**(Use of knowledge in practice)**
	Professional field	**The music. Culture.**	
	Interpersonal interaction	**Common following the model "next to, together"**	
	Interest	Dominant	**artistic**
		Additional	**entrepreneurship**
	Working conditions	in concert halls, outdoors, tours, travel	**activ**

Dominant types of activity	
- expressing (transmitting) the musical idea through the voice and using different interpretation techniques;	
- public performance on the concert and stage stage, etc .;	
- presentation of the work interpreted with emotional depth through the use of vocal art, dance art, artistic mastery;	
- interpretation of musical pieces of various styles, genres;	
- participation in the organization and development of concert programs;	
- live participation in concerts, shows, festivals, music projects;	
- participation as a soloist-vocalist; vocal ensemble artist; artist of the vocal-instrumental ensemble;	
- transmitting different emotions, feelings through vocal intonations and interpretive technique;	
- promoting one's own interpretive style;	
- the permanent preoccupation of the correct assimilation of new musical works, of their preparation through the sustained personal effort, in order to reach the qualitative level necessary for the presentation in public, in front of a diverse audience. "He" demonstrates good communication skills, teamwork and is constantly concerned with personal image, PFPA (Professional-Applied Physical Training), his own health to ensure the longevity of the voice of the "living instrument" and creating the premises for artistic performances of quality;	
- involvement in musical and entertainment events, in clubs, bars, restaurants and various units where recreational activities take place, in events organized by institutions (product launches, premieres, galas, popular holidays, anniversaries of various local / national events, fairs, exhibitions, country celebrations, magazine performances, or by private individuals (weddings, baptisms, anniversaries, various parties), etc .;	
- permanent development of the ability to correctly reproduce various songs, using hearing, rhythmic sense, ability to consciously control breathing and artistic sound emission, resistance to physical exertion, ability to maximum mental concentration, inner concentration, sensitivity, artistic expressiveness, naturalness, interpretive intelligence and spontaneity, creativity and ability to improvise, self-control, personal balance and ability to overcome emotions, adaptability in various contexts, etc.	
Qualities that ensure success	
Fundamentally competences :	- communication at work; - teamwork; - planning one's own activity; - ensuring vocal hygiene and health; - ensuring artistic performance; - performing pre-show activities; - realization of the interpretive strategy of the pieces; - improvement of vocal technique.
Vocational training qualities:	- the will; - intelligence; - love for the job; - patience; - physical health; - creativity; - tireless self-education; - tact and perseverance in pursuing the proposed goal.
Occupation-specific skills:	– discipline; – communication; – spirit of initiative;
Reasons to prevent success	
Causes that prevent normal activity:	– psychoemotional imbalance; – aggressiveness and selfishness; – lack of musical capabilities; – lack of artistic abilities; – lack of initiative; – weak will; – envy; – pride.

Function associated with the profession: pedagogue	
Design:	– knowledge of the psychological peculiarities of age; – knowledge of the mechanisms, processes and sequences of the activity of pupils (students) regarded as a psychological learning process; – translating into observable performances and behaviors the objectives of the teaching/learning process in the field of music; – structuring the content of learning by categories (knowledge, skills, capacities) organized according to the psychological logic of the learning process; – adaptation of teaching strategies to age peculiarities.
Organization:	– fluent, dynamic and expressive communication with students during the educational process; – directing the learning activity of pupils (students), control and orientation through means of external influence of their intellectual (internal mental) processes; – self-regulation of teaching behavior according to the feedback received by pupils (students); – differentiation of teaching behavior according to the individual and typological peculiarities of pupils (students); – capitalizing on group interactions and communications in the educational process; – collaboration with various school institutions and higher artistic education institutions to provide help in organizing and developing school and university support; – material and financial support, etc.
Evaluation:	- knowledge of oral assessment methods; - knowledge of written assessment methods; - knowledge of practical assessment methods; - development and use of standardized assessment tests (samples, tests, questionnaires); - translation into indicators for assessing complex mental abilities; - psychological analysis of the evaluation results and elaboration of explanations regarding the performance levels reached by the pupils (students); - the use of psychological investigation techniques in the evaluation of pupils (students); - checking and evaluating the performances achieved at a given moment; - the evaluation exercised in a current, operative, real, permanent way, highlighting the results that are at the level of forecasts and expectations.
Knowing the pupils (students):	- knowing the pupils (students) by observing the learning behavior during classes; - knowing the pupils (students) by using the methods and techniques of psycho-pedagogical investigation; - psychological characterization of pupils (students) and preparation of psycho-pedagogical files; - knowing and characterizing the group of pupils (students) as a social and educational group.
Improvement, research:	- studying the specialized bibliography, drawing up bibliographic and thematic files; - design, implementation and capitalization of concrete psycho-pedagogical research; - preparation of research reports and scientific reports; - participation in scientific communication sessions and methodological / pedagogical actions; - analysis and capitalization of one's own experience and that of other pedagogues; - methodological-scientific assistance of beginner performers; - encouraging scientific research in music and the exchange of specialized information; - improving the health of the population through music education, rational nutrition and exercise.
Relationship with the environment (social and professional):	- communicating and directing towards convergence its action with the action of the profile institution; - communication with the teaching staff, with the management of the institution and with other administrative structures; - self-assessment according to the signals received from the environment; - motivating social agents in supporting vocational education.
Self-knowledge:	- using psychological training in characterizing one's personality; - self-definition of the interpretive style; - capitalizing on self-knowledge in directing professional behavior; - self-knowledge and self-control according to the information coming from the vocalists; - self-knowledge by reference to the activity of other pedagogues.
Areas of application of professional knowledge	
➢ vocal-instrumental collectives, vocal ensembles, choral collectives;	
➢ theater;	
➢ houses of culture;	
➢ studio;	
➢ social organizations (creative centers for children, etc.);	
➢ radio, television;	
➢ secondary and higher education institutions; preschool institutions;	

It was established that the vocal-pedagogical process within the classes with each student represents an empirically unique individual artistic and didactic form (system) of the professional training of the interpretive potential corroborated with aspects of PAPT (Professional-Applied Physical Training) and mental that serve as basis for future professional performance.

In this sense, the subject of the professional activity of an interpreter, focused on the artistic and didactic system of the vocal and pedagogical process reveals a variety of methodological meanings both from a theoretical point of view and in the practice of professional reflection of the objectified content of the curriculum.

The content of the didactic activities, university curricula, of the vocalists within the instructive-educational process

The Canto discipline is in an interdisciplinary relationship with other subjects in the Curriculum, such as *Speech Art, Actor Art, Vocal Ensemble, Stage Movement and Dance, Working in the Studio, Stylistics of Vocal Interpretation, Solfeggio, Artistic Practice, Psychology, Pedagogy, Arts pedagogy, Methodology of teaching the specialized discipline,* etc.

The purpose of the program: to use the skills acquired in the learning process in the concert activity; forming a culture of vocal and artistic performance.

Based on our research and the chapter of professional-applied physical training, we can provide curricular changes adopted in the field of singing, such as: warming up and strengthening the muscles involved in sound emission, exercises for developing muscles of the phonoarticulator, myogymnastics, body gymnastics , breathing exercises, exercise recovery exercises (concert), etc.:

1. The old program, the standard curriculum (2014), after which in our research studied the control group contains classical teaching methods and procedures specific to the field.

2. In the new curriculum developed in 2019, applied by the experimental group, methods and means of PAPT and mental training were introduced.

The introduction of the changes in the new curriculum was made following the application of the questionnaire, the professional program and the heating models: theoretical-praxiological and mixed. The need for further improvement and implementation of PAPT in the educational process is determined by the following reasons and circumstances:

- the acquisition and realization of the professional abilities of the vocalists depends on the functional capacities of the body, which has a natural basis, on the degree of development of the individual's physical abilities, on the diversity and level of development of the motor qualities;

- although the share of muscular effort in the productivity of the activity is not at the maximum level, the activity of the vocal soloist depends a lot on the physical capacities;

- the prevention of possible negative effects during the professional activity can be achieved through a high level of motor training of the individual;

- the tendencies of the social and technological-scientific progress, do not release the vocal soloist to develop and constantly improve his physical abilities through the methods and means of PAPT.

Theoretical-praxiological model of warm-up of vocal artists

From the analysis of the literature as well as according to the opinion of the vocal artists, we elaborated a theoretical-praxiological model regarding the use of the means of professional-applicative physical training within the professional activity (Figure 5).

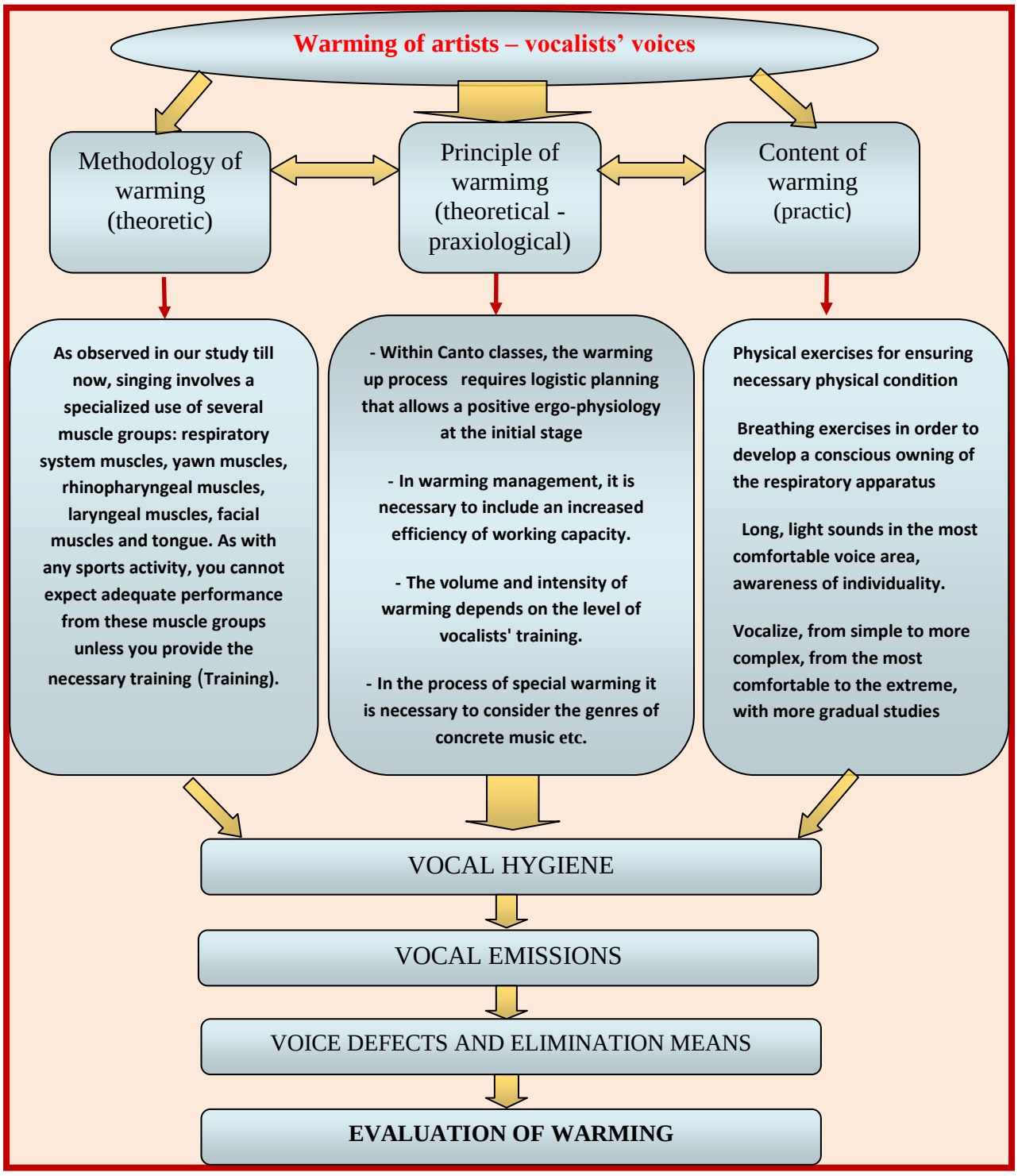

Fig. 5. Theoretical – praxiological model *(elaborated by the author)*

Special physical exercises help vocalists to correct sound emission, develop breathing and increase the effectiveness of work skills. Some exercises will be performed before the vocal training, others will be performed daily, regardless of the vocal training. In order to emit general motor skills and correct sound, we have developed and algorithmized methods of vocal warming by means of PAPT. Based on the specialized literature, the theoretical-praxiological principles of preparation of the phonatory apparatus were selected and the content of the means for professional physical training was elaborated, as well as the integrated theoretical-praxiological model of warm-up the vocalists.

THEORETICAL ARGUMENTATION AND EXPERIMENTAL FOUNDATION OF THE EFFICIENCY OF THE DIDACTIC CONTENT APPLIED IN THE PROFESSIONAL-APPLICATIVE PHYSICAL TRAINING OF VOCALISTS IN EDUCATIONAL INSTITUTIONS

(basic content of chapter 3)

Elaboration, structure and content of the methodological guide for vocalists

The experimental program represented by the methodical Guide Methodological guidelines for vocalists. Professional-applied physical training and mental training is an essential part of the Canto discipline, which was introduced in the current study curriculum.

Structurally, the guide is divided into two parts: the theoretical part and the practical part. The theoretical part is divided into ten chapters divided into subchapters, the practical part is a chapter divided into subchapters, followed by conclusions and bibliography. The text of the guide includes tables, figures, examples of PAPT exercises and mental training, quoted from several sources of information.

Chapter I - Professional-applied physical training for vocalists - includes general notions about the role and importance of PAPT in the profession.

Chapter II - The vocal apparatus. Description of the vocal apparatus - is a chapter on the knowledge of the anatomy and physiology of the vocal apparatus, its composition and mechanism of operation.

Chapter III - Respiratory system - is argued the importance of the respiratory system in sound emission, composition and characterization of organs that are part of the respiratory system.

Chapter IV - Breathing in singing - in this chapter are included notions about breathing, how to breathe correctly, educating the breath for a qualitative emission, the types of breathing, the phases of breathing, the rules of breathing in singing.

Chapter V - Phonoarticulatory apparatus - includes the activity of the phonoarticulatory apparatus in the process of vocalist formation, anatomical composition, phonation process, phonetic elements: vowels and consonants, theories of phonation mechanism.

Chapter VI - Muscles involved in phonation - this chapter describes the morphofunctional characteristic of the muscular system, the muscle groups of the vocal apparatus, the diaphragm, the lungs.

Chapter VII - Voice Hygiene. Singers 'illnesses - the factors that have a negative effect on the voice, the rules of vocal hygiene, the objectives of vocal hygiene, the singers' illnesses and their treatment are analyzed.

Chapter VIII - Vocal defects and difficulties of vocalists. Elimination methods - includes the means of education and protection of the voice, vocal defects, causes and methods of their removal.

Chapter IX - Optimizing the mastery of vocal soloists through mental training and professional-applied physical training - arguments are made of the fundamental elements that underlie the successful performance of the vocalist. We consider the method of mental training and PAPT to be of major and innovative importance. Likewise, in this chapter the mixed model of mental training and PAPT is proposed.

Chapter X - Theoretical-praxiological model of heating vocal soloists. Complex heating method - in this chapter we propose the logized warm-up planning of vocal soloists, warming up objectives and criteria, as well as the theoretical-praxiological model of warm-up.

Chapter XI - PAPT Means Contents - is a complex of exercises: morning gymnastics, breathing exercises, warm-up exercises for the phonoarticulator and facial muscles, warm-up exercises and muscle development involved in phonation, mindfulness exercises, exercises for maintaining a correct posture, exercises and recovery methods after the show.

The influence of the application of the experimental program on the development of psychomotor qualities in vocalists within artistic education institutions

Scientific research programs lead to interdisciplinarity through a complement of profile disciplines, especially when it comes to psychomotor training. Along with all forms of activity, the psychomotor training of vocalists is based on concrete aspects of body development at the level of science requirements, such as biology, endocrinology, cell biochemistry, neurophysiology, etc., but the biggest challenge can be considered motor development activity, which makes an impressive contribution to the training of vocalists as a result of physical exercises.

Highlights study methodologies

The methodological landmarks of the study were elaborated and established, which would elucidate the investigative approach, namely:

- designation of the psychomotor qualities necessary for the vocalist at various stages of training;

- elaboration of the experimental structure and practical examination within the process of education of psychomotor qualities during a year of study;

- theoretical-experimental argumentation of the applied methodology, deduction of conclusions and practical recommendations.

In Table 2 below we present the comparative analysis of the initial and final level of somatic and functional development of vocalists (girls, n = 12).

Table 2. Comparative indices that characterize the initial and final level of somatic and functional development of vocalists (girls, n = 12)

No	Parameters studied	Experimental group (initial – final)		
		x±m	t	P
1.	Body mass (kg)	66,3 ± 1,89 62,1 ± 1,02	1,92	< 0,05
2.	Waistline (cm)	161,2 ± 1,4 166,4 ± 0,6	2,50	< 0,05
3.	Perimeter of the chest (cm)	98,0 ± 1,86 103,8 ± 2,5	2,78	< 0,05
4.	The vital capacity of the lungs (ml)	3139,0 ± 133,54 3589,8 ± 123,81	2,47	< 0,05
5.	Push-ups (times)	7,0 ± 1,03 11,0 ± 0,84	2,90	< 0,05
6.	Lifting the torso from the supine, hands after the head, in 30 sec (times)	11,0± 1,62 15,0 ± 0,90	2,16	< 0,05
7.	Motor reaction to a movable object (m/sec)	20,20 ± 0,90 16,60 ± 1,04	2,62	< 0,05
8.	Tapping-test (times)	45,4 ± 1,18 50,2 ± 1,06	3,42	< 0,01

Notă. For n = 12, the critical value of "t" - Student for the significance threshold of 5% (P <0.05) will be ≥ 2.07, for the significance threshold of 1% (P <0.01) will be be ≥ 3.06 and for the significance threshold of 0.1% (P <0.001) will be ≥ 4.318.

Tests of statistical significance for determining the psychomotor state of the body lead to the idea that the instructive-educational process in physical culture activities, motor-applicative activities and other movement actions become especially necessary for young vocalists to manifest vocal competence, physical endurance which denotes the results of the examinations.

Comparative analysis of the dynamics of the level of functional training of students participating in the pedagogical experiment

Statistical groups regarding the comparative analysis of the functional status of the students included in the pedagogical experiment at various stages of the research

The development of a methodology for vocal students, focused on PAPT, has contributed to

improving motor performance, physical ability and student health.

The objective of the formative pedagogical experiment was realized to test the previously formulated hypothesis:

• In the experimental group, the singing lessons were conducted according to a specially developed methodology, which consisted in correlating PAPT with professional orientation and mental training.

• In the control group, the classes were conducted without the components of the experiment group, ie according to the existing study program and approved by the Department of Musicology, Composition and Jazz and the Department of Choreographic Art and Motor Performance.

• We evaluated the efficiency of the methodology piloted in groups by the magnitude of the changes in the indicators of the functional state of the body, of the physical fitness of the subjects, of their state of health and of the level of academic performance.

• All statistical materials related to the pedagogical experiment were processed by statistical-mathematical methods and placed in tables and figures.

• The analysis of the materials shows that almost all the parameters recorded before the beginning of the pedagogical experiment for all subjects correspond to age norms and appropriate values, and the mathematical evaluation of the statistical significance of the differences between the experimental and control groups made it possible to demonstrate their homogeneity most of the parameters studied.

Indicators of the functional status of the participants in the experiment

The functional state of the body is characterized, to a certain extent, by the results of tests of the cardiovascular and respiratory system and by individual indicators of the physiological functions of vocal students.

The indicators of the cardio-respiratory system were studied at rest, while performing standard physical activities, using the methods: spirography (spirometry) and pneumotahometry. Spirography was used to determine: Vital capacity of the lungs (ml); breathing frequency / min. (no.), respiratory volume / min (l); reserve inspiratory volume (VIR) (ml); reserve expiratory volume (VER) (ml); maximum ventilation of the lungs (l); inspiratory pneumotahometry (l / sec.) and expiratory pneumotahometry (l/sec).

Respiratory rate was determined by counting the number of respiratory movements per minute. Respiratory volume was determined by multiplying the current volume by the frequency of respiration. Oxygen consumption was determined by measuring the height of the slope of the spirogram, between the time points accepted for measurement.

In Table 3 we present comparatively the indicators of the functional and physical condition of the subjects of the experimental and control groups, at the initial stage of the experiment.

Table 3. Indicators of the functional status of the subjects of the experimental and control groups, at the initial stage of the experiment

No	Parameters studied	Groups	Initial stage		
			$\overline{X}$ ± m	t	P
1.	PWC_{170} kgm/min.	C E	555,80 ± 3,56 556,50± 3,72	0,26	>0,05
2.	PWC_{170} kgm/min./kg	C E	9,33 ± 0,22 9,12 ± 0,25	0,30	>0,05
3.	The vital capacity of the lungs (ml)	C E	3144,0±143,33 3139,8±133,54	0,02	>0,05
4.	Current volume (ml)	C E	542,0± 42,5 543,5 ± 42,6	0,16	>0,05
5.	Frequency of breathing /min (no)	C E	15,86 ± 0,45 15,64 ± 0,38	0,24	>0,05
6.	Respiratory volume /min. (l)	C E	8,89 ± 0,48 8,50 ± 0,84	0,40	>0,05
7.	Backup inspiratory volume (BIV) (ml)	C E	1511,2 ± 88,3 1510,3 ± 90,0	0,01	>0,05
8.	Backup expiratory volume (BEV)(ml)	C E	1556,4 ± 47,7 1550,6 ± 47,3	0,59	>0,05
9.	Maximal ventilation of the lungs (l)	C E	82,27 ± 2,43 82,66 ± 3,71	0,15	>0,05
10.	Pneumotachometry to inspiration (l/sec.)	C E	4,91± 0,13 4,90 ± 0,17	0,02	>0,05
11.	Exhalation pneumotachometry (l/sec.)	C E	4,50 ± 0,06 4,49 ± 0,08	0,02	>0,05
12.	Ștanghe Test (sec.)	C E	38,4 ± 6,5 38,2 ±7,3	0,05	>0,05
13.	Ghenci Test (sec.)	C E	20,1 ± 11,2 20,0± 10,4	0,02	>0,05

Note. For n = 22, the critical value of the criterion t - Student will be equal: for the significance threshold of 5% (P <0.05) with 2.07; for the significance threshold of 1% (P <0.01) - by 2.82; for the significance threshold of 0.1% (P <0.001) - by 3.59.

The recorded results allow us to conclude that at the initial stage of the study the level of training of both groups is very close, therefore, from a statistical point of view, they are homogeneous.

As a result of piloting the developed program, at the end of the experiment, superior data of the students of the experimental group were recorded compared to those of the control group, who followed the standard curriculum.

At the final stage (Table 4), the results from the applied tests improved in both groups, but the experimental group exceeded the control one in all 13 applied functional tests (P <0.05 - 0.001).

The increase of all lung values and capacities in the experimental group is due to the training of respiratory muscles according to the methodology developed and proposed by us integrated in a PAPT program, which contributed to increasing the exercise capacity and respiratory endurance of vocalists. The increase of all lung values and capacities in the experimental group is due to the training of respiratory muscles according to the methodology developed and proposed by us integrated in a PAPT program, which contributed to increasing the exercise capacity and respiratory endurance of vocalists.

Table 4. Indicators of the functional status of the subjects of the experimental and control groups at the final stage of the experiment (%)

Nr crt.	Parameters studied	Groups	The final stage		
			X ± m	t	P
1.	PWC_{170} kgm/min.	C E	928,07 ± 10,37 943,55 ± 12,87	2,80	<0,05
2.	PWC_{170} kgm/min./kg	C E	11,94 ± 0,33 13,52 ± 0,31	1,97	<0,05
3.	The vital capacity of the lungs (ml)	C E	3238,46 ±43,72 3589,80±53,81	5,08	<0,001
4.	Current volume (ml)	C E	634,6 ± 5,6 663,1 ±6,9	3,20	<0,01
5.	Frequency of breathing /min (no)	C E	14,90 ± 1,03 11,63 ± 0,88	2,42	<0,05
6.	Respiratory volume /min. (l)	C E	7,78 ± 0,49 9,71 ± 0,64	2,46	<0,05
7.	Backup inspiratory volume (BIV) (ml)	C E	1539,2 ± 93,6 1590,0 ± 108,7	3,57	<0,05
8.	Backup expiratory volume (BEV)(ml)	C E	1552,8 ± 59,62 1619,0 ± 58,05	3,06	<0,01
9.	Maximal ventilation of the lungs (l)	C E	85,61 ± 2,15 93,90 ± 3,79	3,41	<0,01
10.	Pneumotachometry to inspiration (l/sec.)	C E	5,02 ± 0,09 5,89 ± 0,11	6,21	<0,001
11.	Exhalation pneumotachometry (l/sec.)	C E	4,57 ± 0,07 5,35 ± 0,08	7,80	<0,001
12.	Ștanghe Test (sec.)	C E	43,1 ± 6,6 59,0 ± 7,5	4,25	<0,01
13.	Ghenci Test (sec.)	C E	31,10± 12,9 36,02± 10,2	3,10	<0,05

Note. For n = 22, the critical value of the criterion t - Student will be equal: for the significance threshold of 5% (P <0.05) with 2.07; for the significance threshold of 1% (P <0.01) - by 2.82; for the significance threshold of 0.1% (P <0.001) - by 3.59.

The comparative analysis of the dynamics of the functional and somatic condition indices (Table 5) of the subjects of the experimental and control groups (initial-final), demonstrates their superiority (P <0.05-0.001) to the experimental group compared to the control group.

Regarding the dynamics of growth of the indices from the initial to the final stage, this was also better in the experimental group, where there were significant increases in all 11 indices applied to the significance threshold of 5- 0.1% (P <0.05-0.001), comparative data confirm that the use of the curriculum and guide developed by us substantially contributes to increasing the efficiency of the instructional-educational process of vocalists, which was substantially reflected in the predominant majority of parameters in the experimental group compared to the control group, which indicates that the program and methods implemented with the experimental group are efficient and can certainly be applied.

Improving the parameters of physical capacity (PWC170) - at the beginning of the experiment the indices were 906.5 kgm / min. and at the end of it - 943.55 kgm / min. (P <0.01), as well as the functional development of the body of the subjects of the experimental group is due to the exercises and training proposed and developed by us.

Table 5. Comparative analysis of the dynamics of the indicators of the functional and psychological state of the subjects of the experimental and control groups (initial-final)

Nr. crt.	Indicators	Groups	Initial stage			The final stage		
			x±m	t	P	X ± m	t	P
1.	PWC_{170} kgm/min.	C E	905,80 ± 3,56 906,5 ± 3,72	0,26	>0,05	928,07 ± 10,37 943,55 ± 12,87	2,8	<0,05
2.	PWC_{170} kgm/min./kg	C E	12,33 ± 0,22 12,12 ± 0,25	0,30	>0,05	11,94 ± 0,33 13,52 ± 0,31	1,97	<0,05
3.	The vital capacity of the lungs (ml)	C E	3144±3,33 3139 ± 3,54	1,57	>0,05	3238,46 ± 3,72 3589,8 ± 3,81	3,90	<0,001
4.	Current volume (ml)	C E	542,0± 42,5 543,5 ± 42,6	0,16	>0,05	654,6 ± 45,6 663,1 ±46,9	10,30	<0,001
5.	Frequency of breathing /min (no)	C E	15,86 ± 0,45 15,64 ± 0,38	0,24	>0,05	14,90 ± 1,03 11,63 ± 0,88	2,32	<0,05
6.	Respiratory volume /min. (l)	C E	8,89 ± 0,48 8,50 ± 0,84	0,73	>0,05	9,78 ± 0,49 7,71 ± 0,64	1,91	>0,05
7.	Backup inspiratory volume (BIV) (ml)	C E	1511,2 ± 88,3 1510,3 ± 90,0	0,06	>0,05	1539,2 ± 63,6 1590,0 ± 68,7	0,56	>0,05
8.	Backup expiratory volume (BEV)(ml)	C E	1556,4 ± 47,7 1550,6 ± 47,3	0,59	>0,05	1552,8 ± 59,62 1619,0 ± 58,05	0,67	>0,05
9.	Maximal ventilation of the lungs (l)	C E	82,27 ± 2,43 82,66 ± 3,71	0,15	>0,05	85,61 ± 2,15 93,9 ± 3,79	3,41	<0,01
10.	Pneumotachometry to inspiration (l/sec.)	C E	4,91± 0,13 4,90 ± 0,17	0,02	>0,05	5,02 ± 0,09 5,89 ± 0,11	6,21	<0,001
11.	Exhalation pneumotachometry (l/sec.)	C E	4,50 ± 0,06 4,49 ± 0,08	0,02	>0,05	4,57 ± 0,07 5,35 ± 0,08	7,80	<0,001
12.	Ștanghe Test (sec.)	C E	38,4 ± 6,5, 38,2, ± 7,3,	0,05	>0,05	43,1 ± 6,6 59,0 ± 7,5,	4,25	<0,001
13.	Ghenci Test (sec.)	C E	20,1 ± 11,2 20,0 ± 10,4	0,02	>0,05	21,1 ± 12,9 26,2 ± 10,2	3,1	<0,01

Note. For n = 22, the critical value of the criterion t - Student will be equal: for the significance threshold of 5% (P <0.05) - by 2.07; for the significance threshold of 1% (P <0.01) - by 2.82; for the significance threshold of 0.1% (P <0.001) - by 3.59.

We also mention that the improvement of the respiratory system activity can be explained by the introduction in the study program of PAPT methods and complexes, which have contributed to the improvement of external expiration and to the increase of lung capacities. The experiment achieved its intended purpose, and the hypothesis of our research was confirmed.

Analysis of the level of physical training of the subjects participating in the pedagogical experiment

In the practice of research, to evaluate and characterize physical training, various exercises, techniques and actions are used, the choice of which depends on the tasks set, ease of use, their adequacy and other factors. Given this, we tested the participants in the experiment using the

following tests: running 100 m (s), running 1000 m (s), shuttle running 3x10 m (s), long jump from the spot (cm), free swimming 100 m (s).

Table 6. Comparative analysis of the level of physical training of the subjects of the experimental and control groups, at the initial stage of the experiment

Control tests	Experimental group (n = 12)	Control group (n = 12)	The meaning of differences	
	X + m	X + m	t	P
100 m running test, s.	14,41 ± 0,05	14,48 ± 0,05	0,13	> 0,05
1000 m running test, s.	215,0 ± 1,13	213,8 ±0,85	1,53	> 0,05
3x10m shuttle running test, s.	11,50±0,06	11,51±0,06	0,15	> 0,05
Long jump test on the spot, cm	181,0 ± 1,04	180,5 ± 1,04	0,34	> 0,05
100 m freestyle test, s.	143,2 ± 3,60	142,5 ±3,67	0,54	> 0,05

Note. For n = 12, the critical value of "t" - Student for the significance threshold of 5% (P <0.05) will be ≥ 2.07, for the significance threshold of 1% (P <0.01) will be be ≥ 3.06 and for the significance threshold of 0.1% (P <0.001) will be ≥ 4.318.

As can be seen from Table 6, at the 100 m running test, the experimental group, at the initial stage, recorded an average of 14.41 sec, and the control group - 14.48 sec. The experimental group recorded a result only 0.07 seconds lower than the control group, the t value being 0.13 (P> 0.05). This shows us that the examination groups, according to their level of preparation, are homogeneous. At the 1000 m running aerobic endurance test, as we see in the table, at the initial stage, the experimental group recorded an average of 215.0 sec, compared to the control group with an average of 213.8 sec. From here it is observed that the experimental group, at the initial stage, covered the distance 1.2 sec slower than the control group (P> 0.05). In the 10x3 m shuttle running test, at the initial stage of the experiment, the experimental group recorded an average of 11.50 sec, compared to the control group with an average of 11.51sec, which shows that the coordination of movements and sense of balance differ insignificantly, the time difference between the experimental and the control group is 0.01 sec (P> 0.05). Regarding the long jump test at the initial stage of the experiment, the experimental group recorded an average of 181.0 ± 1.04 cm, compared to the control group with an average of 180.5 ± 1.04 cm, which is a difference of 0.5 cm, the value t forms 0.34, and P> 0.05, which indicates a small superiority of the experimental group over the control group. In the 100 m freestyle test, at the initial stage of the experiment, the experimental group recorded an average of 143.2 sec, compared to the control group with an average of 142.5 sec. It follows that the experimental group traveled this distance 0.7 sec slower than the control group (P> 0.05).

Analyzing Table 7, below at the final stage of the experiment, we observe significant differences at the value threshold of 5 - 0.1% (P <0.05-0.001), at all five indices applied. At the 100

m running test, at the final stage, the experimental group obtained the result of 13.07 sec, and the control one - of 14.13 sec (P <0.05).

At the 1000 m running test, the experimental group recorded an average of 195.6 sec., compared to the control group with an average of 202.3 sec., which is a significant difference in the value threshold of 0.1%.

Table 7. Comparative analysis of the level of physical training of the subjects of the experimental and control groups, at the final stage of the experiment (n = 24)

Nr. crt.	Control tests	Experimental group (n = 12)	Control group (n = 12)	The meaning of differences	
		X + m	X + m	t	P
1.	100 m running test, s.	13,07 ± 0,06	14,13 ± 0,05	3,21	<0,05
2.	1000 m running test, s.	195,6 ± 1,06	202,3 ± 0,76	5,01	<0,001
3.	3x10m shuttle running test, s.	10,50±0,06	11,20±0,07	2,32	<0,05
4.	Long jump test on the spot, cm	183,9 ±1,08	181,5 ± 0,53	1,92	<0,05
5.	100 m freestyle test, s.	118,4 ± 1,76	127,3 ± 2,2	4,6	<0,001

In the 3x10m shuttle running test, which defines the speed capability, the experimental group recorded an average of 10.50 sec, compared to the control group with an average of 11.20 sec, which is a significant difference of 0 , 70 sec, compared to the experimental group (P <0.05). In the long jump test on the spot, the experimental group recorded an average of 183.9 cm, compared to the control group with an average of 181.5 cm, the difference between the groups being 2.4 cm (P <0.05). In the 100 m freestyle test, the experimental group recorded an average of 118.4 sec, compared to the control group with an average of 127.3 sec, which is a better average of about 8.9 sec in the experimental group compared to the control group (P <0.001).

Analyzing the indices that define the level of physical abilities of the experimental and control groups (level of psychomotor training) at the final stage of the experiment, we conclude that the experimental group exceeds the control group in most test results.

Analysis of the anxiety state of vocal students as a result of the application of mental training and the methodology of professional-applied physical training Spielberger-Khanin test

The research was performed with the vocalists of the experimental (n = 12) and control (n = 12) groups. According to the requirements of the test, at the beginning and end of the experiment each subject was assigned two forms: one to assess the level of situational anxiety, and the second - to measure the level of personality anxiety.

Following the processing of the results from the forms presented by the students of the experimental group, at the initial stage, on the scale of situational anxiety (AS) the following results were registered: out of the 12 respondents, 8.5% have a low level of anxiety, with a sum of 28

points, 49.8% are at a moderate level (32-43 points), and 41.5% - at a high level of anxiety, with a result that varies between 46-50 points.

The control group, at the initial stage of the experiment, at the scale of situational anxiety (AS), recorded the following indices: of the 12 respondents, 16.7% are at the low level of anxiety with a score from 28 to 29 points, at the level of moderate anxiety are 49.8%, with a score ranging from 33 to 42 points and high anxiety are 33.5%, with a score ranging from 47 to 51 points (Table 8).

Table 8. Comparative analysis of the initial level of situational anxiety of the experimental and control groups

No.	Level of anxiety	Control group (n = 12)	Experimental group (n = 12)
1	Low level	16,7%	8,5%
2	Moderate level	49,8%	49,8%
3	High level	33,5%	41,7%

At the scale of personality anxiety, the initial results in the experimental group are as follows: 16.6% are at a low level of anxiety, with a score of 27 and 28 points, respectively, at a moderate level - 58.3%, with a score that varies from 33 to 44 points and 24.9% - at a high level of anxiety, with a score ranging from 46 to 49 points. The control group, on the scale of personality anxiety, at the initial stage, obtained the following results: the low level of anxiety is 24.6%, with an amount from 26 to 28 points, 50.8% are at the moderate level of anxiety (33-42 points) and at the high level of anxiety - 24.9%, with a result ranging from 48 to 51 points (Table 9).

Table 9. Comparative analysis of the initial level of personality anxiety of the experimental and control groups

No.	Level of anxiety	Control group (n = 12)	Experimental group (n = 12)
1.	Low level	24,6%	16,8%
2.	Moderate level	50,8%	58,3%
3.	High level	24,6%	24,9%

As a result of the introduction of mental training exercises and the mixed model of PAPT and mental training in the training of vocalists in the experimental group, the psychological state of the vocalists of the experimental group improved significantly compared to the psychological state of the vocalists of the control group (Tables 10, 11) .

Table 10. Comparative analysis of the final level of situational anxiety of the experimental and control groups

No	Level of anxiety	Control group (n = 12)	Experimental group (n = 12)
1.	Low level	16,7%	0,0%
2.	Moderate level	58,4%	83,3%
3.	High level	24,9%	16,7%

Table 11. Comparative analysis of the final level of personality anxiety of the experimental and control groups

No	Level of anxiety	Control group (n = 12)	Experimental group (n = 12)
1	Low level	17,7%	0,0%
2	Moderate level	64,6%	91,3%
3	High level	17,7%	8,7%

Analyzing the obtained results, we can conclude that the complex methodology of PAPT and mental training has a beneficial influence on the indicators of situational and personality anxiety. Due to the mental training exercises in correlation with the PAPT means, the crisis associated with the choice of profession was overcome, the confidence in carrying out professional activities was increased. All these contributed to the decrease of the anxiety level, to the experimental group, an imperative condition necessary for the professional activity of the vocalists.

GENERAL CONCLUSIONS AND RECOMMENDATIONS

1. The analysis of the literary sources on the studied topic has shown us that currently no scientifically based research is undertaken on the content of PAPT for vocal students in art education institutions. Following the research we have shown that the need for professional-applied physical training and mental training for vocalists contributes to boosting interest in science, the formation of correct reasoning, critical thinking, the development of intellectual abilities of subjects in accordance with the requirements of modern stage and obviously in line with personal aspirations.

2. For the efficient use of PAPT means, it is extremely important to be able to correctly draw up a professional program, which will have to reflect the vocal-pedagogical process of the classes with each student and to represent an artistic and didactic form (system) unique empirical individual of the professional training of the interpretive potential corroborated with aspects of PAPT and mental training, which serve as a basis for the future professional performance.

The subject of the professional activity of an interpreter, focused on the artistic and didactic system of the vocal and pedagogical process, reveals a variety of methodological meanings both from a theoretical point of view and in the practice of professional reflection of the objectified content of models and curriculum.

3. The sociological research carried out has shown that most respondents are familiar and mention the need to develop a professional vocalist (85%), which certifies its application. The number of respondents who considered it necessary to develop a curriculum focused on PAPT was 92%, which shows that both specialists and graduates requested a change in the existing program. At the same time, 95% of the respondents mention about the need to change the curriculum and the elaboration of a guide, containing PAPT means, in accordance with the new curriculum.

4. The introduction of mental training and PAPT means opens a curricular approach, which means that the student and his skills are at the forefront of the teaching-learning-assessment process, which will take into account both professional standards in the field , as well as the psychomotor abilities of the student.

It is important to mention that the use of PAPT means and mental training has positively influenced the evolution of their professional potential, through the educational process itself.

Following the comparative analysis of the university programs (curricula) in the discipline "Canto", the elaboration of the professional soloist's profession, it was highlighted the need to distribute the 120 hours per year (for each student) of the theoretical-practical department as follows: 90 hours direct contact of which 24 hours include PAPT and mental training and 30 hours individual work, which allowed us to record the efficiency of the degree of assimilation of theoretical and practical knowledge, through the newly developed guide, students thus managing to meet the new requirements of the professional training of vocalists.

5. The use of mental training and PAPT elements becomes an adequate training method, and the professional activity of the singer requires the direct transmission of emotions, artistic content of works performed by voice, word, gesture, stage movement, etc. From the affirmative answers of the students it was deduced that by elaborating and introducing in the educational process the Methodological Guide “Methodological landmarks for vocalists. Professional-applied physical training and mental training ”will eliminate the information gap that exists in connection with solving the problems of applied professional physical training of vocalists studying in art education institutions. Corresponding to the professional attributions belonging to the vocal soloists, the methodology of professional training of vocalists was developed, focused on correlating PAPT with mental training, which must benefit, in our opinion, from a physiological and physical aptitude based on certain skills, personal and professional characteristics.

6. Examining the results of the physiological tests of the subjects of the experimental group, at the beginning and the end of the experiment, we observe the positive effect of the application of the professional-applicative physical means. A significant difference (P<0.05-0.001) was found in the indices from all tests applied in the experimental research process. Thus, statistically significant differences were fixed in the PWC_{170} test, - at the beginning of the experiment the indices were 906.5 kgm/min., and at the end of it - 943.55 kgm/min. (P <0.01). Regarding the depth of respiration, the experimental group, at the initial stage, recorded the value of 843.5 ml, and at the final - 1063.1 ml, the difference being significant at the value threshold of 0.1% (P<0.001). The frequency of respiratory movements, at the initial stage, indicates a value of 15.64 times/min, and at the final stage - 11.63 times/min, the increase also being significant, but at the value threshold - of 5% (P<0.05), which shows us that the methodology developed and approved in the pedagogical experiment has achieved its previously established goal.

7. The indices that define the physical condition of the body of the researched subjects (the level of psychomotor training) also improved significantly at the value threshold of 5 - 0.1% (P<0.05-0.001). At the final stage of the experiment, significant differences were recorded in all five indices applied. Thus, at the 100 m running test, the experimental group recorded an average of 13.07 sec, and the control group - of 14.13 sec (P<0.05), at the 1000 m running, the experimental group recorded a average of 195.6 sec, and the control one - of 202.3 sec, the difference being strongly significant at the threshold of 0.1%. Also, in the 100 m freestyle test, the experimental group recorded a better average of approximately 8.9 sec compared to the control group (P<0.001), which demonstrates that the experiment achieved its intended purpose, and the hypothesis of our research has been confirmed.

8. Following the implementation of the complex methodology of PAPT and mental training we can conclude that all these methods have influenced the indicators of situational and personality anxiety. Mental training exercises in correlation with PAPT means contributed to the increase of the confidence degree in the professional activity. Thus, analyzing the data of the experimental group, we find an increase in the moderate level of anxiety from 58.3% to 91.3%, a decrease to zero in the level of reduced anxiety, from 16.8%, a level that was fixed at the initial stage of research, and the high level of anxiety, on this scale, at the end of the research, decreased from 24.9% to 8.7%, which demonstrates an obvious improvement in personality anxiety and attests the efficiency of the complex methodology on PAPT in correlation with mental training.

Based on the experimental results obtained, but also on the professional experience of several years, we can recommend the following methodological-practical guidelines for future specialists in the field:

The characteristics of the artist's vocal interpretation depend not only on natural qualities (temperament, vocal timbre, talent), but also on external qualities: physical condition, performance culture, ability to use stage movement correctly, use of specific dance movements, etc. therefore, all this must represent an analysis of operative synthesis, which would contribute to a more vivid embodiment of the artist's image on stage.

Exercises in sports such as gymnastics, aerobics, swimming, acrobatics, etc., all have a positive impact not only on the physical condition of the performer, but also provide emotional and mental stability (characterized by mental training), features that the artist must provides for highlighting moments of emotional ascension, as well as for creative inspiration.

The wide range of knowledge, skills and abilities in professional-applied physical training is a critical requirement for vocalists and consists in implementing active approaches in the educational process (large-scale introduction) of systematic practice of individual motor actions, which are the basic elements for the formation of performance skills, so necessary for modern vocalists.

Also critical are the specific methods of training, where the motor act is understood as performing the actual physical exercises (warming up the facial muscles, exercises on logical actions, exercises to improve muscle clamps, to improve tension, breathing exercises, for the development of speech expressiveness skills, exercises for the sufficient development of movement skills). All these exercises must be performed along with other also important components, such as: emotional figurative exercises, exercises to improve muscle tension, muscle relaxation, exercises to improve tension around the laryngeal muscles, to develop speech expressiveness, and obviously for the development of movement skills.

It is recommended to use and apply permanently (as appropriate) and periodically the specific tests to assess the motor performance of vocalists by applying the tests below, which are informative and objective for the given field: physical performance of the body - PWC_{170}, to assess the condition of the cardio system - respiratory - spirometry, which is a very precise method of assessing respiratory capacity in volume and speed; of pneumotahometry and samples *Ştanghe and Ghenci* - to assess the body's ability to withstand oxygen deficiency, and many others, which are imperative both to complete the professionalism of the vocalist and to maintain the levels of physical perfection of employees in the modern music industry.

The elaborations carried out within the study: of the curriculum and the guide can also be the basis of the functionality of the optimized student training program through the use of PAPT means and mental training, which can largely satisfy the requirements of the curriculum of the higher education institutions and some ideas and concepts can be widely used in the educational process in specialized pre-university institutions in the speciality discipline "Canto".

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List of publications on the topic of the thesis

1. BLÎNDU, A. *Pregătirea fizică – componentă importantă a formării inițiale*. În: „Sport. Olimpism. Sănătate": Materialele Congresului Internaţional, 5-8 octombrie, Chişinău: USEFS, 2016, Vol. 1, p. 357-360. ISBN 978-9975-131-32-2.
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4. BLÎNDU, A. *Elaborarea profesiogramei pentru soliști vocali*. În: Studiul Artelor și Culturologie: istorie, teorie, practică, nr.1(38), Chișinău, 2021, p. 58-63. ISSN 2345-14-08 e-ISSN 2345-1831.
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ANNOTATION

Blîndu Adela. ***Professional-applied physical training and mental training for vocalists in art education institutions:*** PhD thesis in education sciences. Chisinau, 2021.

Thesis structure: introduction, 3 chapters, general conclusions and recommendations, bibliography of 182 titles, 7 annexes, 117 pages of basic text, 35 figures, 12 tables. The obtained results are published in 10 scientific papers.

Keywords: special exercises, professional-applied physical training, vocal interpretive skills, vocalists, mental training, art education institutions.

Aim of the research consists of professional-applied physical training for vocalists in higher art education institutions (on the example of *canto* specialty).

Objectives of the research: 1. Identification of the theoretical-methodological bases related to professional-applied physical training's aspects for vocalists in higher art education institutions found in literature and confirmed based on the practice of specialists' professional training in the field of vocal art and interpretive artistry. 2. Identification regurements imposed by professionally-applied physical education in order to increase efficiency of vocalists professional activity. 3. Elaboration and argumentation of the didactic contents with orientation towards the professional-applied physical training for vocalists in specialized higher education institutions (on the example of *cant*o specialty). 4. Theoretical-experimental argumentation of the efficiency of the didactic content applied in the professional-applicative physical training for vocalists in higher art education institutions.

The scientific novelty and originality consist of the elaboration and implementation within the didactic process of professional training designed for future vocalists of the content related to professional-applied physical training as a component part of the general culture, which determines the specificity of professional activity and performing art through the requirements imposed by the degree of teaching, skills, abilities, psychophysical qualities, motivational and valuable attitude towards physical exercises, which are important for augmentation of vocalists' psycho-motor potential for successfully achievement of the stage performance.

The important scientific problem solved was aimed at determining the theoretical and methodological foundations of streamlining the process of professional-applicative physical training of students from institutions of higher artistic education (Canto specialty), by elaborating the professiogram, curriculum, theoretical-praxiological model, as well as the mixed mental training, oriented to the development of psychomotor applicative capacities, but also of the mental ones vocalists at a high level.

The theoretical significance of the study consists of the elaboration and implementation of the professional program, the curricular program focused on professional-applied physical training, which aims at mental training of students in higher artistic education institutions (Canto discipline) to ensure high professional activity.

The applicative value of the research consists of the elaboration and introduction in the educational process practice for future singers of the professional-applied physical training methodology, represented by special exercise modules, which allow the adaptation of the volume and intensity of training sessions, considering the concert activities and artistic competitions.

Implementation of the scientific results. The research results were applied within the study process for students, canto masters' students from AMTFA, as well as for students from specialized secondary education institutions (School of Arts „Alexei Starcea", Chisinau).

ADNOTARE

Blîndu Adela. ***Pregătirea fizică profesional-aplicativă și training mintal a vocaliștilor în cadrul instituțiilor de învățământ artistic*****:** teză de doctor în științe ale educației. Chișinău, 2021.

Structura tezei: introducere, 3 capitole, concluzii generale şi recomandări, bibliografie din 182 titluri, 7 anexe, 117 pagini text de bază, 35 figuri, 12 tabele. Rezultatele obţinute sunt publicate în 10 lucrări ştiinţifice.

Cuvinte-cheie: pregătire fizică profesional-aplicativă, vocaliști, aptitudini interpretative, exerciții speciale training mintal, instituții de învățământ artistic.

Scopul cercetării constă în eficientizarea procesului de pregătire fizică profesional-aplicativă a vocaliștilor în instituțiile superioare de învățământ artistic.

Obiectivele cercetării: 1. Analiza bazelor teoretico-metodologice privind aspectele pregătirii fizice profesional-aplicative a vocaliștilor în instituțiile superioare de învățământ artistic tratate în literatura de specialitate și confirmate prin practica pregătirii profesionale a specialiştilor în domeniul artei vocale și a măiestriei interpretative. 2. Identificarea cerințelor impuse de cultura fizică profesional-aplicativă pentru eficientizarea activității profesionale a vocaliștilor. 3. Elaborarea și argumentarea conţinuturilor didactice cu orientare spre pregătirea fizică profesional-aplicativă a vocaliștilor în instituțiile de învățământ artistic (în exemplul specialității *canto).* 4. Argumentarea teoretico-experimentală a eficienţei conţinutului didactic aplicat în pregătirea fizică profesional-aplicativă a vocaliștilor în instituțiile de învățământ superior artistic.

Noutatea şi originalitatea ştiinţifică constă în elaborarea şi implementarea în procesul didactic de formare profesională a viitorilor soliști vocali a conținutului pregătirii fizice profesional-aplicative, ca parte componentă a culturii generale, care determină specificul activității profesionale și a artei scenice prin cerințele pe care le impune gradul de predare a cunoștințelor, abilităților, aptitudinilor, calităților psihofizice, atitudinii motivaționale și de valoare față de exercițiile fizice, ceea ce este deosebit de important pentru sporirea potențialului psihomotric al vocalistului spre realizarea cu succes a prezentării în scenă.

Problema ştiinţifică importantă soluţionată a vizat determinarea fundamentelor teoretice şi metodologice ale eficientizării procesului de pregătire fizică profesional-aplicativă a studenților din instituțiile de învățământ superior artistic (specialitatea Canto), prin elaborarea profesiogramei, curriculumului, modelului teoretico-praxiologic, precum și cel mixt de training mintal, orientate spre dezvoltarea capacităților psihomotrice aplicative, dar și a celor mintale la viitorii specialiști din domeniu artistic, fapt ce va asigura o pregătire profesională a vocaliștидщк la un nivel înalt.

Semnificaţia teoretică a cercetării constă în elaborarea și implementarea profesiogramei, programei curriculare axate pe pregătirea fizică profesional-aplicativă, care vizează trainingul mintal la studenții în cadrul instituțiilor de învățământ artistic superior (disciplina Canto) pentru a asigura activitatea profesională performantă.

Valoarea aplicativă a cercetării constă în elaborarea și introducerea în practica procesului educațional a viitorilor soliști vocali a metodologiei de pregătire fizică profesional-aplicativă, reprezentate de modulele de exerciții speciale, care permite adaptarea volumului și intensității sesiunilor de formare, ținând seama de activitățile de concert și de desfășurare a concursurilor artistice.

Implementarea rezultatelor ştiinţifice. Rezultatele cercetării au fost aplicate în cadrul procesului de studiu pentru studenții, masteranzii specialității *canto* din AMTAP, precum și elevilor din instituții de învățământ secundar special de cultură și arte (Școala de Arte „Alexei Stârcea”, Chișinău).

АННОТАЦИЯ

Блынду Адела. ***Профессионально-прикладная физическая подготовка и ментальный тренинг вокалистов в художественных учебных заведениях*****:** диссертация доктора педагогических наук. Кишинэу, 2021.

Структура диссертации: введение, 3 главы, общие выводы и рекомендации, библиография из 182 источников, 7 приложений, 117 страниц основного текста, 35 рисунков, 12 таблиц. Полученные результаты опубликованы в 10 научных статьях.

Ключевые слова: профессионально-прикладная физическая подготовка, вокалисты, исполнительские навыки, специальные упражнения, художественные учебные заведения.

Цель исследования – повышение эффективности процесса профессионально-прикладной физической подготовки вокалистов в высших художественных учебных заведений.

Задачи исследования: 1. Анализ теоретико-методологических основ по аспектам профессионально- прикладной физической подготовки вокалистов в высших художественных учебных заведениях, освещенных в специализированной литературе и подтверждённых практикой профессиональной подготовки специалистов в области вокального искусства и исполнительского мастерства. 2. Выявление требований профессионально-прикладной физической культуры для повышения эффективности профессиональной деятельности вокалистов. 3. Разработка и обоснование дидактических содержаний с ориентацией на профессионально-прикладную физическую подготовку вокалистов в художественных учебных заведениях (на примере специальности *пение*). 4. Теоретико-экспериментальное обоснование эффективности дидактического содержания, применяемого в профессионально-прикладной физической подготовке вокалистов высших художественных учебных заведениях.

Новизна и оригинальность исследования заключается в разработке и внедрении в дидактический процесс профессиональной подготовки будущих солистов-вокалистов содержания профессионально-прикладной физической подготовки как составной части общей культуры, определяющее специфику профессиональной деятельности и сценического искусства посредством требований, предъявляемые уровнем преподавания знаний, умений, способностей, психофизических качеств, мотивационного отношения и ценности к физическим упражнениям, что особенно важно для повышения психомоторного потенциала вокалиста для успешного выступления на сцене.

Важная научная проблема, решённая в исследовании, заключалась в определении теоретических и методологических основ повышения эффективности процесса профессионально-прикладной физической подготовки студентов высших художественных учебных заведениях (по специальности *пение*), посседством разработки профессиограммы, учебного плана, теоретико-праксиологической и смешанной моделей ментального тренинга, направленные на развитие прикладных психо-двигательных, а также психических способностей у будущих специалистов в области искусства, что обеспечит профессиональную подготовку вокалистов на высоком уровне.

Теоретическая значимость исследования заключается в разработке и реализации профессиограммы, учебной программы основанные на профессионально-прикладную физическую подготовку, направленную на умственную подготовку студентов высших художественных учебных заведений (по дисциплине *пение*) для обеспечения высокого профессионального уровня деятельности.

Прикладная значимость исследования заключается в разработке и внедрении в практику учебного процесса будущих солистов-вокалистов методики профессионально-прикладной физической подготовки, представленной модулями специальных упражнений, что позволяет адаптировать объем и интенсивность учебных тренировок с учетом концертной деятельности и проведение художественных конкурсов.

Внедрение научных результатов. Результаты исследования были применены в учебном процессе студентов, мастеров по специальности *пение* АМТИИ, а также учеников средних специальных учебных заведений культуры и искусств (Школа Искусств «Алексей Стырча», Кишинэу).

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