

PROFESSIONAL APPLIED PHYSICAL TRAINING FOR HUMANITIES STUDENTS BASED ON INDIVIDUALIZATION OF EDUCATION

Roman S. Nagovitsyn, Aleksander Y. Osipov, Mikhail D. Kudryavtsev, Galina N. Kazakova,
Natal'ya V. Lyulina

¹Department of Physical Culture, Methodology and Sports, Glazov State Pedagogical Institute, Glazov, Russia, e-mail: gto18@mail.ru

²Department of Physical Culture, Siberian Federal University, Krasnoyarsk, Russia, e-mail: ale44132272@ya.ru

³Department of Physical Culture, Krasnoyarsk State Medical University named after professor V.F. Voyno-Yasenetsky, Krasnoyarsk, Russia, e-mail: info@krasgmu.ru

⁴Department of Physical Culture, Siberian Law Institute of the Ministry of Internal Affairs of the Russian Federation, Krasnoyarsk, Russia, e-mail: kumid@yandex.ru

⁵Department of Physical Culture, Reshetnev Siberian State University of Science and Technology, Krasnoyarsk, Russia, e-mail: priemsibsau@sibsau.ru

⁶Department of Physical Culture and Valeology, Krasnoyarsk State Pedagogical University of V.P. Astafyev, Krasnoyarsk, Russia, e-mail: kspu@kspu.ru

* Corresponding author: Roman S. Nagovitsyn, ; gto18@mail.ru ; 427621, Pervomaiskaya St., 25, Glazov, Russia

Abstract

The aim of the study: to develop professional applied physical training for humanitarian students on the basis of individualization of training and to experimentally prove its effectiveness in the implementation of professional training at the university. The study was conducted at the University of the Humanities for 10 months, in which 126 students took part. The participants of the experimental focus group carried out professional applied physical training based on the author's program of individualization of training. The author's program was implemented based on the characteristics of future professional activities, professionally important physical and mental qualities of students. After the experiment, the number of participants in the experimental group at a high level, compared with the number of participants in the control group, significantly increased ($p < 0.05$). The individualized means and training methods proposed in the experiment, focused on the types of professional activity chosen by students, made it possible to obtain a reliable ($p < 0.05$) positive result for the following indicators: operational, reflective, and behavioral. As a result of improving the educational process of physical training in a humanitarian university, each student can find an activity that is more consistent with his future professional activity.

Keywords: applied physical training, students, physical activity, individualization of training.

INTRODUCTION

Modern political trends in society indicate that the indicator of the level of its development is not financial and economic well-being, but mainly the activation of the educational and upbringing movement in society [1]. The main engine of which is the graduates of various institutes and universities of humanitarian and other training profiles [2]. The main idea of professional education is the paradigm of the formation of a personality culture of a future specialist in a particular social field [3]. The key impact on its activity is provided by motivational, value, cultural and professional features that determine the contradictions in various social aspects [4]. In turn, the emerging contradictions can act as a motivator or an obstacle to further effective self-formation of a person in professional development [5].

The key of the leading tasks in enhancing internal and external contradictions can be called the creation of an effective psychological and pedagogical environment for effective professional training of the younger generation [6]. Moreover, the effectiveness of solving educational problems to improve the professional skills of students pursues the highest goal [3]. Namely, the awakening of subjectivity in each participant in education in the process of training, education and formation [1]. His self-realization through the basis of his potential inherent in a young man [7]. In this main area of professional training of humanitarian universities, the problem of the quality of education and training at the level of professional applied physical training is bypassed [8]. The solution to these problems is possible only with the value character of the content of vocational training, in which the values of material,

spiritual and physical culture should be fully and harmoniously rationally presented [9, 10].

The analysis and synthesis of scientific and methodological literature revealed the main contradiction for the implementation of this study [2, 11]. Between the increasing demands of social institutions on the quality of psychological and pedagogical education [12] and the inferior use in educational practice of the substantial potential of professional applied physical training of students, based on innovative substantial possibilities of individualizing instruction [13, 14]. In this regard, the goal was set in the study: to develop professional applied physical training for humanitarian students on the basis of individualization of training and to experimentally prove its effectiveness in the implementation of professional training at the university.

MATERIAL AND METHODS

Participants

The study was conducted on the basis of a higher educational institution of a humanitarian profile for 10 months (September 2018 - July 2019). 126 full-time students of various training profiles from 18 to 25 years old, regardless of gender, took part. Prior to the start of the study, all participants in the experiment had experience in physical exercises with low and medium intensity physical activity of an aerobic and anaerobic nature, at least 2-3 times a week. Each participant in the experiment received written consent to participate in the study. Prior to the study, the focus group ($n=126$) was divided into the experimental ($n=62$) and control ($n=64$) groups. The experimental group (EG) included

participants who, during the experimental period, carried out professional applied physical training based on the author's individualization program for training. This program was implemented in the academic and extracurricular time of students. In turn, participants implementing physical training according to the normative and standard system in the academic and extracurricular time were enrolled in the control group (CG).

Statistical analysis

The data obtained before the implementation of the experimental work and after its implementation were processed using the SPSS Statistics 20. The significance of differences in the results was determined using chi-square (χ^2) at $p < 0.05$. Mathematical and statistical processing was performed between the experimental and control groups for each indicator proposed in the study. Mathematical and statistical analysis was carried out at the following levels: high, medium and low, in accordance with the state of each studied indicator.

Procedure

The implementation of vocational training at various faculties, the analysis of the implementation of curricula by training profiles, activated the modernization and improvement of the physical training program [13]. This was carried out through the introduction of various sports and non-traditional types of physical exercises for each of the faculties of the humanities university. The need to differentiate various elements in the content of physical education was carried out according to two criteria: physiological characteristics of students on the basis of a medical examination and the results of functional diagnostics; selection of elements for the content of physical culture according to vocational guidance [15]. To develop the content of professional applied physical training on the basis of the author's program of individualization of training at the university, features of future professional activity and professionally important physical and mental qualities were developed (Table 1).

Table 1: Features of future professional activities and professionally important physical and mental qualities of students of a humanitarian university

Training Profiles	Formation of the properties and qualities of the future teacher		
	Features of activity	Specifics of future professional activity	Professionally important physical and mental qualities
Russian language, literature, foreign language	Increased mental activity	Inactive labor, requiring little physical energy. Most often, a working sitting posture, motor actions are minimal, low-amplitude and slight tension of the muscles of the fingers	Self-confidence, emotional stability, tolerance, memory, imagination
Mathematics, Physics, Computer Science			Memory, thinking, emotional stability, logical thinking, attention
History, Culturology		Inactive labor combined with tourist and archaeological activities	Initiative, organizational skills, operational thinking
Social work, child psychology	Increased neuro-emotional stress	Mobile activities requiring moderate expenditures of physical energy, work with dysfunctional families and adolescents	General stamina, attention, initiative, organizational skills, emotional stability
Elementary classes		Mobility activities requiring moderate physical and increased mental energy expenditures	Initiative, organizational skills, endurance, emotional stability, tolerance
Music		Combined activity requiring moderate physical and increased mental energy expenditures	Imagination, courage and determination, emotional stability
Technology, life safety			Emotional stability, operational thinking, tolerance, perseverance
Physical education	Significant physical activity, increased nervous tension	Mobile activities requiring high physical and mental energy expenditures	Initiative, emotional stability, organizational skills, perseverance, tolerance

Future teachers studying in the fields of preparation "Native education", "Philological education", "Learning foreign languages", "Mathematical education", "Natural-physical education", "Information technologies", "Historical education" are activated in the curriculum for physical education are as follows: athletics, sports and outdoor games, badminton, swimming and swimming. To enrich the content of motor activity, the following non-traditional systems of physical exercises have been proposed: water aerobics, yoga, bodybuilding, and various types of individual and group fitness [5, 16].

Students implementing an educational program in the fields of "Mathematical Education", "Physical Education" and "Information Technology" recommend generally accepted types of physical activity: athleticism, armwrestling, chess, weight-lifting, Russian drafts and various types of athletics. Also, students studying in the natural science cycle were offered innovative systems of motor activity: powerlifting, bast shoes, bodybuilding, streetball, group fitness and individual snowboarding [6, 9].

For future teachers in the fields of "Historical Education" and "Cultural Studies", universally recognized types of physical

activity have been introduced, such as various types of tourism and orienteering, and bullet shooting. As well as this contingent of students, in the process of physical education, innovative systems of physical activity were introduced, for example, historical fencing, parkour, streetball, lightning, historical orientation and mountain running [11].

In turn, students studying in the profiles of "Social Activities" and "Practical Psychology for Children", where girls are mainly trained, have activated traditional outdoor games, hand-to-hand combat, swimming and various types of aerobics. During physical education, girls are also offered innovative systems of physical activity such as martial arts, yoga, cycling, Russian bast shoes and Nordic walking [17].

In the process of professional training in physical education for future primary school teachers, various types of female gymnastics, active games, volleyball, pionerball are recommended. And innovative forms of motor activity, for example, Russian bast shoes, group types of shaping and cyclic aerobics, were also introduced into the program.

In the process of training, future teachers who study in the field of "Music Education" have identified traditional types of physical activity, as well as non-traditional and innovative

types of physical education and sports, such as body flex, callanetics and Pilates [10].

Future teachers of technological activities and the basics of the safe implementation of the educational process, defined as the generally accepted and standard content of physical fitness, and biathlon - powerlifting, pair cycling and various types of martial arts and wrestling. Future specialists in the field of fitness and physical education are offered both traditional physical training systems and non-standard sports methods: cycling, shaping, Russian bast shoes and pendant fitness systems [17].

RESULTS

Before the start of the study (September 2018) and after the end of the study (July 2019), diagnostic procedures were carried out on the effectiveness of the training process at the university. Diagnostics was implemented according to three indicators: operational, reflective and behavioral. In turn, each indicator ranged the participants in the experiment into three levels of professional preparedness: high, medium and low.

Table 2: The results of the experimental work on the effectiveness of vocational training before (September) and after (July) the experiment

Index	Stage	Number of respondents						Mathematical and statistical analysis	
		High		Medium		Low		X2	P
		EG	CG	EG	CG	EG	CG		
Operating	September	3	4	41	39	18	21	2,09	> 0,05
	July	17	6	43	49	2	9	10,31	< 0,05
Reflective	September	2	2	21	26	39	36	2,18	> 0,05
	July	8	2	32	30	22	32	8,12	< 0,05
Behavioral	September	10	9	41	43	11	12	1,03	> 0,05
	July	34	18	27	35	1	11	12,64	< 0,05

The recorded data at the end of the experiment showed the effectiveness of the experimental work. After the experiment, the mathematical-statistical significance of the differences between the EG and the CG at $p < 0.05$ was recorded. The number of participants in the EG study at a high level, compared with the number of CG, significantly increased ($p < 0.05$). In this time period, the indicators of professional training for all indicators significantly increased: operational, reflective and evaluative. The significance of differences for each given indicator was revealed at $p < 0.05$. From here, the main result of the study can be identified: the implementation of the author's program on the basis of individualization of training is statistically effective. The improvement of physical qualities and associated abilities, functions and systems of the body, which are of key importance for the corresponding future profession, was reliably ($p < 0.05$) ensured by applied special training. The individualized means and methods proposed in the experiment, adequate to the features of the professional activity chosen by students, made it possible to obtain a significant positive result after the implementation of the study.

DISCUSSION

The experimentally proven results of this study are consistent with the findings of other studies on the implementation of professionally applied physical training [2, 7]. In their studies, experts [8, 11] pay special attention to improving the mental qualities of students, such as will, operational thinking, qualities of attention, speed of perception, and emotional stability [1, 9]. Some experts in the field of physical training of students determine the increase in students' functional stability to the adverse effects of the educational space, such as hypokinesia [6, 15]. Other researchers prove the need for this type of physical activity to increase the special physical and health competence and education of students, especially necessary for the implementation of a full-fledged professional activity [4, 16]. In turn, the results of this study combine these research developments in a comprehensive

The operational indicator included the following areas: sports and fitness knowledge, understanding and possession of sports and medical knowledge, the skill of applying sports and fitness knowledge in practice. Reflective indicator: the ability to analyze fitness and fitness skills and the creative use of special abilities in the field of fitness and physical activity. Behavioral indicator: level of physical education and lifestyle, well-formed, motivational-value attitude to maintaining harmonious physical activity.

Mathematical and statistical processing according to X2 before the study (September 2018) revealed an unreliable difference at $p > 0.05$ between the EG and the CG in all indicators: operational, reflective and behavioral. It follows that the focus groups before the start of the experiment had a statistically equal number of students at high, medium and low levels. As shown in Table 2, a significant part of the study participants have changed the indicators of the effectiveness of training before and after the experimental work:

approach to this physical activity. The implementation of the author's program on the basis of individualization of training proves the effectiveness of professional applied physical training of students in the humanities profile.

In various research papers, it is proposed and experimentally substantiated that professional applied physical training significantly affects the improvement of the quality of vocational training and the reduction in the time for students to master labor skills [2, 12]. Experts prove [4, 5] that applied physical training increases the resistance of a growing young specialist to the adverse effects of the work environment [1, 15]. Some researchers prove a decrease in the incidence rate and contributes to the professional longevity of the teaching staff [5, 14]. In this direction, the author's study statistically proves an increase in students' level of healthy lifestyles engaged in applied visual training in the author's system. This is ultimately the main preventive means of increasing immunity and significantly improves the professional process of a young specialist.

As a result of the modernization of the software for professional physical education activities of students at a humanitarian university, each student can find motor activity that is directed to his future professional activity. As well as his individual motor needs, professional values, motivation for activity, since the harmonious realization of each person's capabilities is one of the key conditions for optimizing the process of the flow of all areas of the young specialist's life.

Limitations

The presented work is limited to a small sample of study participants, covering a separate age period: from 18 to 22 years. The number of participants in the study was heterogeneous by gender. The obtained sample does not provide an opportunity to cover the entire target audience. Accordingly, the results can be determined as preliminary. For further more detailed analysis, it is necessary to conduct a comparative analysis of a larger sample, differentiated by age,

gender groups and levels of professional and applied development.

CONCLUSION

Thus, the study developed professional applied physical training for humanitarian students based on individualization of instruction. Which is a specialized direction of physical education, carried out with the requirements and qualifications of the future professional activities of teachers. The study revealed the directed development of students and maintaining at a harmonious level their mental and physical abilities for future activities in the education system. These qualities are manifested in the development of the functional stability of the student's body to the conditions of this activity and the formation of applied motor skills. In turn, which will be especially necessary in connection with the special external and internal conditions of future work.

As proved in this study, standard physical training, organized without regard to the specifics of labor, may not only not contribute to the development of the profession. And in a number of cases it is difficult to do it due to the negative transfer of the formation of professionally important qualities and skills. The results of the study showed that taking this fact into account is essential to justify the need for special physical training in relation to the requirements of the profession. The introduction of professional applied physical training is most effectively and efficiently implemented in the organic connection of physical training with the practice of future professional activities of a young humanitarian specialist.

Ethics

The Institute Committee for Medical and Health Research Ethics approved the study (2020/04), which was conducted in accordance with the Helsinki declaration. All results were treated anonymously.

Source of financing

The work was done without attracting additional funding.

Conflict of interests

The authors declares the absence of obvious and potential conflicts of interest related to the publication of this article.

Acknowledgments

The authors sincerely thank the participants in the experiment who took part in this study.

REFERENCES

1. Richards, K. A. R., Jacobs, J. M., Ivy, V. N., & Lawson, M. A. (2020). Preservice teachers perspectives and experiences teaching personal and social responsibility. *Physical Education and Sport Pedagogy*, 25(2), 188-200. <https://doi.org/10.1080/17408989.2019.1702939>
2. Pylypey, L. P. (2012). Methodology of students' professionally-applied physical training in universities. *Pedagogics, psychology, medical-biological problems of physical training and sports*, 10, 59-63.
3. Nagovitsyn, R. S., Maksimov, Y. G., Miroshnichenko, A. A., & Senator, S. J. (2017). Implementation of the didactic model of preparing students for innovative practice within the framework of continuing teacher education. *Novosibirsk State Pedagogical University Bulletin*, 7(5), 7-24. <https://doi.org/10.15293/2226-3365.1705.01>
4. Petryshyn, O. (2015). Forming psychophysical competence of students of higher medical institutions in professionally applied physical training by means of gaming techniques. *Science and education*, 5, 78-83.
5. Sergeevna, S. E., Vladimirovich, K. O., Anatolievich, G. A., Ivanovich, P. K., Vladimirovich, U. A., Valentinovich, N. A., Leonova I. A., & Vrublevskaia, E. G. (2020). Features of the use of testing as a method of pedagogical control of students' knowledge in the educational process. *Journal of Critical Reviews*, 7(3), 181-184. <https://doi.org/10.31838/jcr.07.03.33>
6. Pasek, M., Szark-Eckardt, M., Wilk, B., Zuzda, J., Żukowska, H., Opanowski, M., Kuska, M., Drózd, R., Kuśmierczyk, M., Sakłak, W., & Kupcewicz, E. (2020). Physical fitness as part of the health and well-being of students participating in physical education lessons indoors and outdoors. *International Journal of Environmental Research and Public Health*, 17(1), 309. <https://doi.org/10.3390/ijerph17010309>
7. Chernii, V., Shevchenko, O., Nievorova, O., Melnyk, A., Kramarenko, A., & Nikonenko, T. (2020). Development of Professionally Important Physical Qualities in Engineering Students. *Revista romaneasca pentru educatie multidimensional*, 12(1), 93-105. <https://doi.org/10.18662/rrem/12.1sup1/225>
8. Kashuba, V. O., & Golovanova, N. L. (2018). Increase in efficiency of professionally applied physical training of pupils of 16-17 years old based on application of informational and methodical systems. *Physical education of students*, 22(2), 57-62. <https://doi.org/10.15561/20755279.2018.0201>
9. Klymovych V, Oderov A, Romanchuk S, Korchagin M, Chernozub A, Olkhovyi, O. & Zolocheskyi, V. (2020). The influence of professionally oriented physical training means on the operator's physical ability level. *Sport Mont*, 18(1), 19-23. <https://doi.org/10.26773/smj.200204>
10. Kuzmin, V. A., Kopylov, Y. A., Kudryavtsev, M. D., Tolstopyatov, I. A., Galimov, G. Y., & Ionova, O. M. (2016). Formation of professionally important qualities of students with weakened motor fitness using a health related and sport-oriented training program. *Journal of Physical Education and Sport*, 16(1), 136-145.
11. Karagodina, A. M., Krikunova, O. F., Klychkova, O. V., & Ushanov, G. A. (2018). Technique of professionally-applied physical training of students of building specialties by means of orienteering. *Nauchnyi dialog*, 8, 261-272. <https://doi.org/10.24224/2227-1295-2018-8-261-272>
12. Blumenstein, B., & Orbach, I. (2020). Periodization of psychological preparation within the training process. *International Journal of Sport and Exercise Psychology*, 18(1), 13-23. <https://doi.org/10.1080/1612197X.2018.1478872>
13. Nagovitsyn, R. S. (2014). Conceptual framework of formation of personal physical culture of student based on mobile learning. *Teoriya i Praktika Fizicheskoy Kultury*, 10, 11-14.
14. Osipov, A., Kudryavtsev, M., Fedorova, P., Serzhanova, Z., Panov, E., Zakharova, L., Savchuk, A., Yanova, M., Zhavner, T., & Klimuk, Y. (2017). Components of positive impact of exposure on university physical culture and sports on students' physical activity. *Journal of Physical Education and Sport*, 17(2), 871-878. <https://doi.org/10.7752/jpes.2017.02133>
15. Campbell, P. G., Stewar, I. B., Sirotic, A. C., & Minett, G. M. (2020). Does exercise intensity affect wellness scores in a dose-like fashion? *European Journal of Sport Science*, 7, 1-10. <https://doi.org/10.1080/17461391.2019.1710264>
16. Kolumbet, A. N. (2016). Methodic of girl students' professionally significant coordination qualities' perfection at physical education classes. *Physical education of students*, 20(4), 35-43. <https://doi.org/10.15561/20755279.2016.0404>
17. Ivanova, N. L. (2020). Adaptive physical culture: Features of physical training of students. *Journal of Critical Reviews*, 7(1), 314-316. <https://doi.org/10.31838/jcr.07.01.60>