DEVELOPMENT OF VOLITIONAL QUALITIES AND IMPROVEMENT OF PSYCHO-EMOTIONAL STATE OF HIGHER EDUCATION STUDENTS IN THE PROCESS OF PENTATHLON

INTRODUCTION

According to many scientists, physical training plays an important role in shaping the psychological readiness of higher education seekers to act in extreme conditions, increasing their psychological resistance to stress. This is due to the fact that the means of physical training ensure the development and improvement of not only physical but also mental nature. When used correctly, physical training can significantly improve all components of moral and psychological readiness of higher education: morale, volitional qualities, emotional stability, mental performance. In order to study the impact of pentathlon on the emotional state and volitional qualities of higher education we analyzed the results of testing higher education seekers by the following methods: the method of “FAM” (feeling, activity, mood), the method of self-assessment of emotional state, the method of determining the level of development of volitional self-regulation of the individual (IASECHKO, M., IASECHKO, S., SMYRNOVA, I., 2021).

THE INITIAL PRESUPPOSITIONS

In the article, the following research methods were used to solve the set tasks: theoretical (study and analysis of scientific and pedagogical, psychological and regulatory documentation on the topic of pedagogical, reference, specialized literature, research, additional professional advanced training programs; analysis, comparison, classification of the information received and generalization); empirical (pedagogical experiment, observation, questionnaire survey, survey, conversation, testing); mathematical (statistical data processing).

METHODS

Analysis of indicators of emotional state of higher education students according to the method of “FAM” showed that for all three studied characteristics (well-being, activity, mood) in the 1st - 4th year of study a significant difference between the indicators of Groups №1 and №2 was not found ( p> 0.05) (Table 1). At the same time, in Group №1 the indicators of well-being of higher education students of the 4th year are better than those of higher education students of Group №2 by 0.55 points, activity indicators - by 0.36 points, and mood indicators - by 0.16 points. Analysis of the dynamics of emotional states of higher education seekers shows that in both groups the indicators improved: in Group №1 indicators of well-being - by 1.22 points (p≤0.05), activity - by 1.21 points (p≤0.05), mood - by 1.27 points (p≤0.05); in Group №2 - by 0.61 (p≤0.05), 0.81 (p≤0.01) and 0.98 points (p≤0.01), respectively.
**Table 1.** Dynamics of indicators of emotional state according to the method of “FAM” in applicants for higher education Groups №1 and №2 for the period of the ascertaining stage of the pedagogical experiment, points

| Curriculum | Group №1 (n=44) | Group №2 (n=459) | The level of significance |
|------------|-----------------|------------------|--------------------------|
|            | X±m             | X±m              |                          |
| Feeling    |                 |                  |                          |
| 1- st      | 6,95±0,38       | 7,01±0,19        | p>0,05                   |
| 2- st      | 7,41±0,36       | 7,25±0,18        | p>0,05                   |
| 3- st      | 7,88±0,35       | 7,48±0,16        | p>0,05                   |
| 4- st      | 8,17±0,31       | 7,62±0,17        | p>0,05                   |
| Activity   |                 |                  |                          |
| 1- st      | 6,80±0,41       | 6,85±0,18        | p>0,05                   |
| 2- st      | 7,29±0,40       | 6,99±0,21        | p>0,05                   |
| 3- st      | 7,68±0,42       | 7,24±0,20        | p>0,05                   |
| 4- st      | 8,01±0,43       | 7,66±0,22        | p>0,05                   |
| Mood       |                 |                  |                          |
| 1- st      | 6,47±0,34       | 6,60±0,17        | p>0,05                   |
| 2- st      | 6,95±0,36       | 7,01±0,21        | p>0,05                   |
| 3- st      | 7,26±0,32       | 7,19±0,20        | p>0,05                   |
| 4- st      | 7,74±0,29       | 7,58±0,19        | p>0,05                   |

**Source:** Search data.

The study of indicators of self-esteem by higher education students of their own emotional state shows that in the 1st - 3rd year of study a significant difference between the indicators of Groups №1 and №2 was not found (p> 0.05). In the 4th year, the indicators of higher education students who were engaged in pentathlon were significantly better than those of higher education students who were engaged in the traditional system of physical education, by 0.73 (p≤0.05) (Table 2).

Analysis of the dynamics of self-assessment of emotional state of higher education students during the study period showed that in both groups the emotional state significantly improves - in the 4th year the indicators of higher education in Group №1 are significantly (p≤0.001) better than in the 1st year, by 3.06 points, and for applicants for higher education of the Group №2 - by 2.32 points.

**Table 2.** Dynamics of indicators of self-assessment of emotional state of applicants for higher education of Groups №1 and №2 for the period of the ascertaining stage of pedagogical experiment, points

| Curriculum | Group №1 (n=44) | Group №2 (n=459) | The level of significance |
|------------|-----------------|------------------|--------------------------|
|            | X±m             | X±m              |                          |
| 1- st      | 4,23±0,34       | 4,31±0,13        | p>0,05                   |
| 2- st      | 5,78±0,32       | 5,07±0,11        | p>0,05                   |
| 3- st      | 6,44±0,29       | 5,85±0,12        | p>0,05                   |
| 4- st      | 7,29±0,27       | 6,63±0,14        | p≤0,05                   |

**Source:** Search data.

The highest indicators of emotional state in the 4th year in both groups indicate a positive effect of both pentathlon and the traditional system of physical education, but significantly higher indicators in Group №1 indicate a more pronounced effect of military training. Combating the formation of a positive emotional state in applicants for higher education to achieve success in education and their future professional activities.

The application of the method of determining the level of development of volitional self-regulation of the individual allowed us to determine the higher self-regulation index (according to the general scale B), the persistence index (according to subscale H) and the index of self-control (according to subscale C). The value of the index of volitional self-regulation can be in the range from 0 to 24 points, the value of the index of persistence - from 0 to 16 points, the index of self-control - from 0 to 13 points. If the answers of higher education...
students were more than half of the maximum possible amount of coincidences, it indicates a high level of development of volitional self-regulation, persistence or self-control. For scale B, this value is 12, for scale H - 8, for scale C - 6 points.

Scientists note that self-regulation is a systemic characteristic of a person that reflects his ability to function sustainably in learning and professional activities, focusing on achieving maximum efficiency of their own activities, skills and experience in controlling their condition, behavior, activities. In general, the level of volitional self-regulation is understood as the degree of mastery of personal behavior in various situations, the ability to consciously control their actions, desires and states. A high score on the B scale is characteristic of emotionally mature, active, independent, self-sufficient individuals.

They are characterized by calmness, self-confidence, stability of intentions, realistic views, a developed sense of personal duty. As a rule, they well reflect personal motives, systematically embody their own intentions, are able to distribute efforts and are able to control their actions, have a strong socio-positive orientation (IASECHKO, SHELUKHIN, MARANOVA, 2021).

Low score is observed in people who are sensitive, emotionally unstable, vulnerable, insecure. Their reflexivity is not high, but the general background activity is usually reduced. They are characterized by impulsiveness and instability of intentions. This can be due to both immaturity and a pronounced sophistication of nature, not supported by the ability to reflect and self-control. Subscale persistence characterizes the strength of a person's intentions - his desire to carry out the work.

On the positive pole - active, able-bodied people who actively strive to achieve the planned, they are mobilized by obstacles to the goal, do not avert alternatives and temptations, their main value - the case is started. Such people are characterized by respect for social norms, the desire to completely subordinate their behavior. Low values on this scale indicate increased lability, uncertainty, impulsivity, which can lead to inconsistencies in behavior.

The reduced background of activity and working capacity, as a rule, is compensated at such people by the increased sensitivity, flexibility, ingenuity, and also tendency to free interpretation of social norms (IASECHKO, M., IASECHKO, S., SMYRNA, 2021). The subscale of self-control reflects the level of arbitrary control of emotional reactions and states. High score on the subscale is gained by emotionally stable people who are well-versed in a variety of situations.

They are characterized by inner peace, self-confidence, free from fear of the unknown, increase the willingness to perceive the new, unforeseen and, as a rule, are combined with freedom of opinion, with a tendency to innovation and radicalism. At the same time, the desire for constant self-control, excessive conscious restriction of spontaneity can lead to increased internal tension, to the predominance of constant anxiety and fatigue. At the second pole of this subscale - spontaneity, impulsiveness, which in combination with vulnerability and the predominance of traditional views protect a person from intense feelings and internal conflicts, contribute to a calm mood (RUSANIVSKYI, FEDCHENKO, KRUK, OLEKSYCHYK, LYSYK, SHTOMA, YURIEV, 2021).

Thus, the analysis of testing indicators of higher education seekers on a general scale showed that in the 1st year the index of voluntary self-regulation did not differ significantly in higher education seekers of Groups №1 and №2 (p > 0.05). Starting from the 2nd year of study, applicants for higher education, who were engaged in military pentathlon, recorded significantly better indicators of volitional qualities than applicants for higher education, who were engaged in the traditional system of physical education: in the 2nd year the difference is 1, 91 points (p≤0.01), on the 3rd - 3.73 points (p≤0.001), on the 4th - 4.32 points (p≤0.001) (Table 3).

During the study period, the index of Volvo self-regulation in both groups significantly improved (p≤0.001), but in Group №1 the difference between the indicators of higher education students of the 1st and 4th courses is 10.44 points, and in Group №2 - 6, 49 points, which confirms the effectiveness of pentathlon classes on the education of willpower in future professionals. The high level of the index in Group №1 was found in the 2nd - 4th year, and in Group №2 - in the 3rd and 4th year (YURIEV, ZhUKOVA, OKHRIMENKO, OKHRIMENKO, KAZYMIR, LISNICHENKO, OLO, HALIMOV, PRONTENKO, 2019).
Table 3. Dynamics of indicators of volitional self-regulation in applicants for higher education of Groups №1 and №2 for the period of the ascertaining stage of pedagogical experiment, points

| Curriculum | Group №1 (n=44) | Group №2 (n=459) | The level of significance |
|------------|-----------------|------------------|-------------------------|
|            | X±m             | X±m              |                         |
|            | Volunteer self-regulation index |               |                         |
| 1- st      | 9,61±0,69       | 9,24±0,12        | p>0,05                  |
| 2- st      | 13,28±0,64      | 11,37±0,13       | p≤0,01                  |
| 3- st      | 17,54±0,61      | 13,81±0,11       | p≤0,001                 |
| 4- st      | 20,05±0,57      | 15,73±0,09       | p≤0,001                 |
|            | Persistence index |               |                         |
| 1- st      | 8,03±0,54       | 7,91±0,10        | p>0,05                  |
| 2- st      | 11,14±0,49      | 8,32±0,08        | p≤0,001                 |
| 3- st      | 13,70±0,45      | 8,84±0,07        | p≤0,001                 |
| 4- st      | 15,18±0,37      | 9,17±0,06        | p≤0,001                 |
|            | Self-control index |               |                         |
| 1- st      | 6,12±0,34       | 5,85±0,09        | p>0,05                  |
| 2- st      | 7,72±0,36       | 6,25±0,10        | p≤0,001                 |
| 3- st      | 9,35±0,32       | 7,71±0,08        | p≤0,001                 |
| 4- st      | 11,53±0,29      | 8,60±0,07        | p≤0,001                 |

Source: Search data.

RESULTS AND DISCUSSION

A study of the dynamics of indices of persistence and self-control shows that their changes have a similar trend: a significant (p≤0,001) improvement over the period of study at institution of higher education in both groups (YURIEV, OKHRIMENKO, GRIEBAN, KOBERNYK, KUZNIEATSOVA, DZENZELIUK, ROZHOVNOVA, VERBOVSKYI, YAVORSKA, TKACHENKO, PRONTENKO). Thus on the 1st course indicators of applicants of higher education of Groups №1 and №2 both on an index of persistence, and on an index of self-control reliably do not differ among themselves (p> 0,05), and on the 2nd - 4th courses indicators applicants for higher education in Group №1 are significantly better than in Group №2 (Table 3).

It was found that applicants for higher education, who were engaged in the section of institution of higher education pentathlon, are characterized by calmness, self-confidence, stability of intentions, a developed sense of personal responsibility, ability to distribute efforts and control their actions, activity, desire to carry out business, control emotional reactions and states, emotional stability (IASECHKO, KHARLAMOV, SKRYPCHUK, FADYEYEVA, GONTARENKO, SVIATNAIA, 2021).

Fig. 1. Dynamics of the index of volitional self-regulation in applicants for higher education, who during training were engaged in pentathlon (Group №1, n = 44), and applicants for higher education, who were engaged in the traditional system of physical education (Group №2, n = 459), points

Source: Search data.
CONCLUSION

Defining the basic principles of development and the distribution of responsibilities between the development team, which should work in tandem at all stages of development, will allow the creation of full-scale training systems targeted at a wide range of users. A clear process of interaction of methodology and technology on the way of developing distance multimedia training systems will increase the level of efficiency, speed of development, with a competent distribution of competencies.

Modern information technologies such as pattern recognition systems, machine learning and neural networks are capable of automating complex data analysis and processing. Pattern recognition technology allows the computer to continuously learn and collect data to form the database needed to be able to create an automatic review and grading system graphic images.

The system of automated assessment of graphic images is an important step towards the creation of distance learning systems in the field of graphic design. Computer technologies have made significant changes not only in the educational process, but also in the social, cultural and other spheres of human life. Information systems have become an integral part of human social life in most areas, which has given rise to a new paradigm in society. It is difficult to underestimate the impact of computerization on human life, which over the past half century has become completely different, and its pace developments are constantly accelerating. Education - as the engine of progress and the foundation of the future, demonstrates the guidelines of society, its development and aspirations.

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Development of volitional qualities and improvement of psycho-emotional state of higher education students in the process of pentathlon

Desenvolvimento das qualidades volitivas e melhora do estado psicoemocional de alunos do ensino superior em processo de pentatlo

Desarrollo de cualidades volitivas y mejora del estado psicoemocional de los estudiantes de educación superior en el proceso de pentatlón

Resumo
O artigo realiza pesquisas relacionadas ao uso da tecnologia de ensino superior no processo educacional de alunos de instituições de ensino superior, como atividades de pesquisa no processo educacional. O uso da atividade de pesquisa é comprovado como um método de ativação da atividade cognitiva dos alunos. Desenvolvido e proposto o uso de abordagens algorítmicas modificadas para a organização e conteúdo das atividades de pesquisa de alunos de instituições de ensino superior.

Palavras-chave: Candidatos ao ensino superior. Qualidades voluntárias. Estado psicoemocional.

Abstract
The article conducts research related to the use of higher education technology in the educational process of students of higher education institutions, as research activities in the educational process. The use of research activity is substantiated as a method of activating the cognitive activity of students. Developed and proposed to use modified algorithmic approaches to the organization and content of research activities of students of higher educational institutions.

Keywords: Applicants for higher education. Volitional qualities. Psycho-emotional state.

Resumen
El artículo realiza investigaciones relacionadas con el uso de la tecnología de la educación superior en el proceso educativo de estudiantes de instituciones de educación superior, como actividades de investigación en el proceso educativo. El uso de la actividad investigadora se fundamenta como método de activación de la actividad cognitiva de los estudiantes. Desarrollado y propuesto para utilizar enfoques algorítmicos modificados para la organización y contenido de las actividades de investigación de estudiantes de instituciones de educación superior.

Palabras-clave: Solicitantes de educación superior. Cualidades voluntarias. Estado psicoemocional.