NEW TECHNOLOGIES IMPLEMENTATION
INTO PROFESSIONAL AND APPLIED
PHYSICAL EDUCATION IN THE
VOCATIONAL SCHOOLS

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Abstract: The article includes the analysis of scientific researches on physical education problems as well as professional and applied physical education of youth, and vocational education establishments’ students in particular. There was determined the content, structure and tasks of professionally directed physical education in the establishments of the human resources professional training. The innovative fitness technologies implementation into the process of professional and applied physical education was modified. There was held an experimental research of the modern TRX fitness technology implementation into the system of professional and applied physical education of the students in vocational education establishments.

Keywords: physical education, vocational school, content of physical education, structure of physical education, task of physical education, professional training, coaching, fitness.

Introduction
In the social life modern conditions while the development of Ukrainian state is being intensively developed, the issue to ensure the successful socialization of the younger generation sharply arises on daily agenda. The issue of personal professional development gains a peculiar value in the context of research of factors that promote the youth socialization which is important to be analyzed as a process going through the entire life and has its own peculiarities on every separate phase of the professional way. Socialization and professional processes are bounded tightly on the preliminary phase of the young person integration in to the professional environment, when the life and professional self-determination takes place.

Professional development gains a special urgency while studying the youth in the vocational education establishments of Ukraine. The professional socialization of a young person takes place during the study period – a process of integration into the professional environment, assimilation of rules, regulations and requirements of professional activity. According to E. Klymov, a human takes the way of commitment and its assimilation (professional activity adept phase).

Professional and personal development social factor is education. The modern science proved that different kinds of education, tightly bounded with the social environment, contribute to the social behavior programs elaboration and young person’s professional development. One of the kinds of education work is considered to be the physical education which is an important element of professionally directed socializing process.

The developed physical exercises are being used in the process of physical education together with the nature forces and hygienic factors for the special knowledge set up, motion skills, physical qualities education and various organism improvements according to the society requirements. Hence the physical education as the pedagogical process contributes to the person’s physical education.

A kind of the physical education is the professionally directed one that is to provide the physical readiness character and level which is required for a young person in a certain kind of professional activity. The content of the professionally directed physical education is caused by the requirements to the professional’s personality, primarily to his physical and psychological forwardness that are tightly bounded with the professional activity specifics in their turn.

With the aim to set up the employee’s physical qualities, important for the chosen kind of labor activity, a special physical training, which is called professionally applied physical training, is being carried out in the process of professionally directed physical education in the vocational education establishments.

The idea of the physical education methods usage in the process of person’s preparation to the labor is
not principally new. Back in 1891 P.F. Leshraft told: \textit{While implementing the physical education into the vocational school we consider the achievement of art in craft.}

Professionally directed physical education in Ukraine has been developed in two ways: while the preparation of youth to the labor (professional and applied physical education) and in the production process (production gymnastics). The Resolution of the Presidium of the CEC USSR dated Apr. 1, 1930 played a vital role in the conception of the professional and applied physical training as the profile direction and kind of physical education. It included serious state and social activities on physical culture introduction into the system of labor rationalization and human resources education. Together with the introduced complex \textit{Ready for Labor and Defense} into educational establishments’ curricula in 1932, an objective to promote the preparation primarily of the wide developed and physically able-bodied employees fully ready to the labor activity was determined.

Since 1930 there had been raised the issue of professional and applied physical training taking into account the profile of the future professionals in the first state programs on physical educations which were introduced in the Terms of References of the education establishments. Since 1959 the need of the professional and applied physical training had been envisaged in the curricula of the physical education in vocational schools of all kinds, incl. the establishments of the human resources professional training. The physical education was planned according to the physical loading of the future employees in curricula of the vocational schools. However the practical recommendations on professional and applied physical training appeared in the mentioned program in 1971 only.

The problem of physical education development and professional and applied physical training of youth and the students of vocational education establishments is not new. A plenty of substantial and methodological aspects of this issues has been analyzed in the works of L.Matveev, V.Volkov, Y.Antoshkiv, S.Halayji, O.Podlesnyi, I.Bondarenko, R.Rymyk, V.Kabachkov, S.Polievskiy, A.Horchakov, V.Belinovych, A.Laptet, V.Shevtsov and others.

The labor of qualified employees requires a big intensity of physical powers in the modern conditions. Every profession requires a bunch of certain physical professional’s properties which are important to be set up in the process of a certain direction professionals training. Certain structure, methodological and organizational basis, special methods, education influence methods and forms, and regulations system determined in a certain kind of the professional activity, were defined for the professional and applied physical education of the students of vocational education establishments. The main factors that determine the content and structure of the professional and applied physical education of the students in the human resources professional training establishments are labor types, forms, conditions and character; work and resting regime; employees workability dynamics peculiarities in the labor activity process; professional ailments character.

The main tasks being solved out in the process of professional and applied physical training in the human resources vocational education establishments: enrichment and improvement of the physical education skills personal fund, motion skills that provide the assimilation of the chosen professional activity; development of the professionally important physical qualities of the employee required for the chosen type of the labor activity; increasing the degree of the organism resistance concerning the dangerous influence of the environment and conditions where the labor activity takes place.

The acquaintance of the students to the theoretical basis of professional and applied physical training, set up of the physical qualities required for the certain profile professionals, and preparation to their participation in the competitions on special and applied sports etc. are envisaged in the curricula of the physical education in the vocational education establishments.

However the professional and applied physical training organization in the vocational education establishments of Ukraine requires further improvement in the context of compliance with the increasing modern needs of the labor branch employees’ preparation. This is what makes the designated direction relevant and promising from a scientific point of view. One of the ways of the professional and applied physical training efficiency increase in the vocational education establishments is the innovative technologies implementation into the physical education process.

Nowadays, the most progressive and available technologies of the human physical qualities improvement are the fitness technologies that due to certain condition can become the source of the new method of professional and applied physical training.
The advanced technologies of the fitness industry offer a wide range of the programs today. Each of them has its own orientation and methodological peculiarities. Depending on the orientation and methods the modern programs are divided into various groups: cardio programs, power orientation programs, smart body programs, functional trainings etc.

Method

Taking into account the peculiarities of the study process organization and limited resources at vocational education establishments of Ukraine, one of the most available programs for its applying in the professional and applied physical training system today is the innovative fitness program TRX.

TRX is a unique invention of the American company Fitness Anywhere. By virtue of their functionality the TRX loops have a right to be called as exercise equipment. TRX loops firstly were used in the US army taking into account their efficiency and compact size. The sports technology mentioned above became widely used in the professional sports too. Since 2012 the TRX program has been introduced in the advanced fitness clubs of Ukraine. TRX exercises are recommended to everyone who wants to increase the functional opportunities of the body and stay always in a good sporty shape.

The principle of the TRX compact trainer is the usage of the person’s own body weight. The resistance is created by the persons’ body weight and the gravitation. In addition to the major muscles groups, the stabilizing muscles start working too. During the exercises the human muscles are under static tension, deep muscles work, copula-tendon unit strengthens, and strength, endurance and coordination are being increased. Taking into account the absence of the axial load on the spine, the probability of getting a trauma during exercise decreases, and it increases the security of TRX trainer usage. The TRX target programs include more than 100 effective exercises for all the groups of muscles that widen the opportunities for holding the professional and applied physical training.

The convenience and comfort of TRX equipment usage gives an opportunity to carry out the trainings in the gym, in the room of a small square (e.g. health room) or at the sport yards, in the open air. It is possible to fix the trainer on the gymnastics crossbars, wall bars, obstacle course metal constructions, trees and others. It does not take more than few minutes to install and prepare the TRX loops for the training.

It was put a task in the research – to prove the efficiency of TRX technologies implementation in the professional workers physical qualities set up on the example of the building and constructing professionals training at the vocational school no. 1 (Rivne, Ukraine), who study at Constructing and Wood Processing Dept. Most of the works done by the workers of the mentioned profile are mostly standing position near the equipment. The quality of the equipment management depends mostly on the resistance of the worker’s pose in the upright position. The following is required in the work: high movements’ precision, muscles efforts in the arms and hands, steady attention, accurate eye, and the ability to balance. The tasks of the professional and applied physical training for this profession are: development of muscle strength of the shoulder girdle, torso, and feet; improvement of balance in upright position, hands coordination, and development of endurance.

General Discussion

In order to carry out the experiment there were determined two groups of students of 1st academic year: experimental group of 10 members (in addition to curriculum trainings – TRX technology trainings) and control group of 15 members (curriculum physical education only). The experimental group of students was set up on a voluntary basis due to additional extracurricular fitness exercises.

During the experiment on TRX technologies introduction into the system of professional and applied physical training, the main emphasis was focused on two key physical qualities shape up: physical endurance and hands and arms muscles power - dynamometry (with spring dynamometer). According to the mentioned methodologies for evaluation of every student power and endurance development there were carried out control measuring before and after experiment both in the experimental group and control group.

The trainings with experimental group were held once a week during two months in the rooms with the equipment of the fitness club Fitness Port (Rivne, UA). The trainings were carried out by the author of the article, TRX program certified trainer. The training program included the basic exercises course oriented to the power and endurance development.

The result of the TRX technology implementation became real positive changes of the experimental physical qualities of the students during the shape up experiment (Tab. 1).
The evaluation of the students’ physical qualities as a result of the held experiment showed that major statistical changes tended to take place in the experimental group.

### Table 1

**Student physical qualities dynamics as a result of TRX program applied**

<table>
<thead>
<tr>
<th>Physical qualities</th>
<th>Control group (students / % of the general amount)</th>
<th>Experimental group (students / % of the general amount)</th>
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<tr>
<td></td>
<td>Decrease of indicators</td>
<td>Indicators without changes</td>
</tr>
<tr>
<td>Hand and arm muscle s power (dynamometry)</td>
<td>2/13.3</td>
<td>9/60</td>
</tr>
<tr>
<td>Physical endurance (Harvard step-test)</td>
<td>2/13.3</td>
<td>11/73.4</td>
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The negative dynamics on the experimented indicators in both of the groups was caused by the skipping of the classes by the students due to the good reasons (experimental group – 1, control group - 2). The indicators of the arm muscle power of 3 students in the experimental group remained without any changes on the opposite of 9 students in the control group, as well as the endurance of 4 students in the experimental group to 11 students in the control group.

At the same time there took place an increase of the power indicators of 70% of the students in the experimental group on the opposite to 26.7% of students in the control group; as well as the endurance indicators of 50% of the students in the experimental group on the opposite to 13.3% of students in the control group.

Hence the results of the experimental group showed the expedience of TRX modern fitness technology implementation into the system of professional and applied physical training at vocational education establishments. The usage of TRX increases the effectiveness of the required physical qualities set up for the chosen worker professions.

The hold experiment does not exhaust all the aspects of the professional and applied physical training. Still perspective are the issues of the research and approbation of the other types of fitness technologies implementation into the system of the professional and applied physical trainings at vocational education establishments of Ukraine.

**References**


