

## Human resources management of educational development in the sphere of physical culture and sports in Ukraine: comparative analysis (1992-2016)

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### Abstract

The article presents the results of factor analysis of education development indicators in the sphere of physical culture and sports in Ukraine for the period of 1992-2016; general tendencies of its development have been established. **The purpose** of the article is the analysis of the modern problems of human resourcing and educational development in the sphere of physical culture and sports in Ukraine.

**The participants of the experiment:** education development human resources in the field of physical culture and sports in Ukraine (total 66963 people); pupils and students of educational institutions (pre-school education - 1268251 persons, general education - 3703158 people, vocational education - 276369 people, higher education - 1180829 people, non-formal education - 412906 people, sports clubs - 460042 people, educational establishments of enterprises - 10673773 persons

**Methods:** factor analysis was carried out using the main components method with "varimax" rotation; an estimation of interconnections between factor and performance features was carried out by the method of statistical equations of dependencies using IBM SPSS Statistics 23 computer mathematical and statistical complexes.

**Results.** The dynamics of the level of Ukrainian physical culture and sports system staffing in absolute and qualitative indices has been researched. The qualitative indicators, which are reflected in the state statistical reporting in the field of education, higher education and physical culture and sports, have been analyzed, namely: the number of administrative staff in the field of physical education and sports; number of teachers, trainers and instructors conducting physical education classes; total number of population, students and pupils; the number of students and pupils engaged in physical training and education, etc. A comparative analysis of the stability coefficients of interrelation between the total number of students and the number of people attending physical education classes, being engaged in physical education and sports in Ukraine, with the corresponding indicators of the leading EU countries has been carried out.

**Conclusions.** It has been confirmed that the stability coefficient of the interrelation between the total number of students of educational institutions and the number of persons attending physical education classes in general matches the corresponding indicators of the EU countries. At the same time, the stability coefficient between the total number of students of higher educational establishments and the number of people attending physical education classes or individually engaged in sport activities in Ukraine is 1.5 times lower than in the leading EU countries.

**Key words:** human resourcing, management, education development, physical education and sports.

### Introduction

Management effectiveness improvement of physical culture and sports is one of the priority directions of realization of social policy in Ukraine. The current state of education development in the field of physical culture and sports is characterized by the accumulation of social problems associated with the political and economic conditions of society's existence: military actions in the East of the country; deep economic crisis; a significant decrease in financing of physical culture and sports sphere; a decrease in the incomes of citizens and, accordingly, the possibility to spend money on personal physical development; low affordability of the population to the sports infrastructure, the deterioration of the physical condition of people and their health, and a decrease in longevity. The existing system of physical education of young people and the organization of

physical culture does not meet the needs of the population. There is a low level of involvement in physical education, sports and mass sports work as an integral and essential component of a healthy lifestyle, and the inadequate level of engagement of students in primary sports in general and extra-curricular educational institutions (Hasiuk, 2011).

The situation is also tense in the sphere of physical culture and sports staffing (Horbenko, 2002; Huzar, 2009). Decline in sports infrastructure, changing the ownership of existing sports facilities, low income of specialists of physical culture and sports led to the outflow of a large number of highly trained trainers and instructors (Imas, Michuda, 2008; Oliinyk, 2000). At the same time, the current development of education in the field of physical culture and sports is not possible without proper, highly professional staffing (Horbenko, 2002; Kononovych, 2013; Oleinik, Mudrik, Prykhodko, et al. 2004; Mudryk, Oliinyk, Prykhodko, 2001).

**Purpose and objectives.** The purpose of the article is the analysis of the modern problems of human resourcing and educational development in the sphere of physical culture and sports in Ukraine for the period of 1992-2016.

Objectives of the study:

1. To perform a factor analysis of the indicators of education development in the field of physical culture and sports in Ukraine based on the data of annual statistical reporting.
2. To study the dynamics of the level of personnel training for the development of education in the field of physical culture and sports in Ukraine in absolute and qualitative terms.
3. To carry out a comparative analysis of the coefficients of sustainability between the total number of students and the number of people attending physical education classes and engaged in physical education and sports in Ukraine with relevant indicators of the leading EU countries.

### Materials and methods.

**The participants of the experiment:** education development human resources in the field of physical culture and sports in Ukraine (total 66963 people), among them: teachers of secondary schools, heads and teachers of vocational schools, instructors of higher education institutions 1-2 accreditation levels, lecturers of higher education institutions 3-4 accreditation levels, specialists in pre-school educational establishments, trainers-instructors on different sports, methodologists, instructors of children and youth sports schools, employees of the physical culture and sports of the executive authorities, instructors of physical culture from the village councils.

Pupils and students of educational institutions (pre-school education - 1268251 persons, general education - 3703158 people, vocational education - 276369 people, higher education - 1180829 people, non-formal education - 412906 people, sports clubs - 460042 people, educational establishments of enterprises - 10673773 persons).

**Organization of research:** The study was conducted between October 2017 and February 2018 based on the results of the annual State Statistical Reporting of the Ministry of Ukraine for Family, Youth and Sports. The assessment of the state of development of education in the field of physical culture and sports of Ukraine was carried out on the basis of the integrated assessment method results of socio-economic development, which is an integral part of the method of complex statistical coefficients (Kulynych, 2007).

**Methods.** Factor analysis was performed using the main components method with "varimax" rotation; an estimation of interconnections between factor and performance features was carried out by the method of statistical equations of dependencies using IBM SPSS Statistics 23 computer mathematical and statistical complexes.

### Methodology of Research

Factor analysis was carried out using the main components of the "varimax" rotation method in order to reduce the size of the output data and to establish the most important factors influencing the tendencies of development and functioning of education in the field of physical culture and sports of Ukraine. In addition, an estimation of the interconnections between factors and productive features was carried out by the method of statistical equation of dependencies, which allowed determining intensity of certain factors influencing the dynamics of dependent indicators of the state of education development in the field of physical culture and sports of Ukraine.

Statistical analysis. The implementation of the abovementioned tasks was carried out using the computer mathematical and statistical complexes of IBM SPSS Statistics 23 - software for evaluating the relationships of economic phenomena by the method of statistical equation of dependencies (Kulinich, 1996), Microsoft Excel 2016. According to the logic of the organization of research and the requirements of special literature (Biiul', Peter, 2005; Kulynych, 2007; Ignatieva, Maksimov, 2000; Salin, Shpakovskaia, 2001; Seluianov, Shestakov, Kosmina, 2001; Surmin, 2003) concerning the application of appropriate methods of mathematical statistics, the main descriptive statistics of the studied indicators were calculated and verified on the normality of distribution with a view to further application of parametric statistics methods. The normality of the distribution of empirical data was determined by the method of Plochinsky (Plochinsky, 1970), for the

indices that were not characterized by the normal distribution; appropriate methods of normalization and standardization of data were applied.

In order to establish the modern problems of personnel development of education in the field of physical culture and sport in Ukraine, we considered the sustainability coefficients of the connection between the total number of students versus the number of people attending physical education classes and those who are engaged in physical education and sports having compared them with the relevant indicators in the leading EU countries (Horbenko, 2002; Kononovych, 2013).

### Results of Research

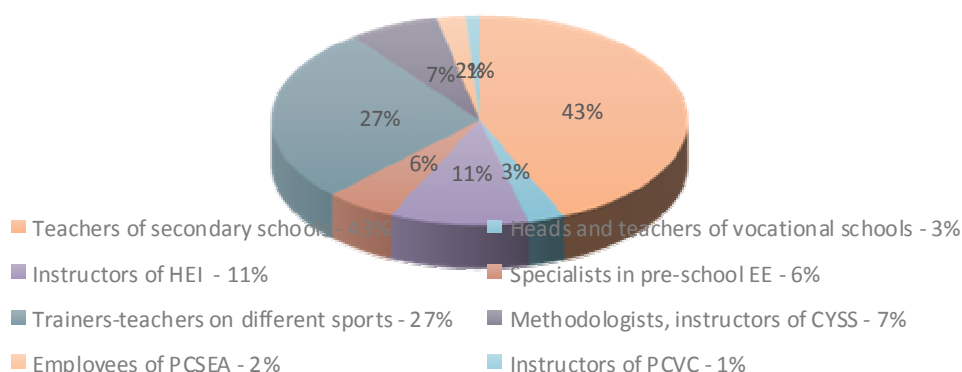
In order to establish general tendencies in the education development in the field of physical culture and sports of Ukraine, we examined the general indicators of the development of education and higher education, in Ukraine, in particular, the indicators of human resources development of education in the field of physical culture and sports of Ukraine for the period 1992-2016 (Table. 1; 2). The analysis of the dynamics of the human resourcing level in the field of physical culture and sports was carried out on the results of indicators of annual statistical reporting (Main Department of Statistics, 2005; State statistical report of the Ministry of Ukraine for Family, Youth and Sport 1992; 1998; 2002; 2006; 2009; 2013; 2016). It is found that the total number of full-time employees in the sphere of physical culture and sports in Ukraine in the period 1992-2016 was fluctuating in the range of 14%, but by 2016 it was 66662 people, which is by 0,4% less than in 1992. It should be noted that in the research period there was a process of employees' redistribution in the areas of activity, which directly affects the quality indicators of educational activities in the field of physical culture and sports. So, the number of physical education instructors in secondary schools decreased by 11.0% from 26456 to 23555 people; heads and instructors of physical education of vocational schools decreased by 27.7% from 2141 to 1549 people; number of physical education instructors dropped by 11.5% from 6619 to 5856 people; the number of physical culture instructors of the village councils decreased by 96.3% from 15256 to 570 people.

**Table 1.** Dynamics of indicators of human resources education development in the field of physical culture and sports of Ukraine for the period 1992-2016

Indicator	1992	1998	2002	2006	2009	2013	2016	Total change %
Instructors of secondary schools	26456	29083	29183	28242	27551	27016	23555	-11,0%
Heads and instructors of vocational schools	2141	1901	1747	1815	1825	1776	1549	-27,7%
Instructors of higher education institutions (HEI), 1-2 accreditation levels	2621	2395	2525	2841	2978	2911	5856	-11,5%
Lecturers of HEI, 3-4 accreditation levels	3998	3733	4312	5289	5135	5026		
Specialists in pre-school educational establishments (EE)	----	1487	1730	1932	2142	2883	2961	99,1%
Trainers-instructors on different sports	13914	15558	16438	17770	16842	17949	14809	6,4%
Methodologists, instructors of children and youth sports schools (CYSS)	2838	2752	3201	3875	4301	3531	3780	33,2%
Employees of the physical culture and sports of the executive authorities (PCSEA)	983	880	936	1110	1250	1422	1237	25,8%
Instructors of the physical culture from the village councils (PCVC)	15256	129	478	892	787	727	570	-96,3%
<b>Total number</b>	<b>66963</b>	<b>66226</b>	<b>69909</b>	<b>75042</b>	<b>76125</b>	<b>75765</b>	<b>66662</b>	<b>-0,4%</b>

At the same time, the process of the growth of the administrative apparatus took place. Thus, the number of employees of executive bodies responsible for the sphere of physical culture and sports increased by 25.8% from 983 to 1237 people; the number of methodologists and instructors of children and youth sports schools has grown by 33.2% (from 2838 to 3780 people). As a positive trend, the increase of specialists in physical education of pre-school educational establishments can be noted by 99.1% from 1487 to 2961 people, trainers-instructors on different sports, by 6.4% from 13914 to 14809 people. It should also be noted that in the period of 2013-2016, all the main indicators of human resources management for the development of education in the field of physical culture and sports had a negative dynamics (fig. 1).

Indicators of human resources management for the development of education in the field of physical culture and sports in 2016



**Figure 1:** Distribution of human resources management for the development of education in the field of physical culture and sports in 2016

Due to the significant political, socio-economic and demographic changes that had a direct impact on the development of education in the field of physical culture and sports during the period of study, the absolute indicators of the development in the sphere of physical culture and sports do not fully reflect the true state of things. The problems associated with the demographic crisis in Ukraine, the decrease in the population and, accordingly, the number of students in 2014, were accompanied by problems related to the temporary loss of the Crimean and Donbass territories and, accordingly, educational institutions, trainers, teachers, instructors and the students. Consequently, absolute indicators of education development in the field of physical culture and sports in the period 2013-2016 are negative and it is expedient to make their assessment in a relative ratio.

**Table 2.** Dynamics of indicators of human resources development of educational institutions in the field of physical culture and sports of Ukraine for the period 1992-2016

Year	Number of higher educational institutions		Number of students		Secondary schools	
	1-2 accreditation levels	3-4 accreditation levels	1-2 accreditation levels	3-4 accreditation levels	Amount of schools	Amount of students
1992	753	158	718,8	855,9	22,0	7088
1998	653	298	503,7	1210,3	22,1	6987
2002	667	330	582,9	1686,9	22,1	63580
2006	570	350	468,0	2318,6	21,4	5120
2009	511	350	354,2	2245,2	20,6	4495
2013	478	325	329,0	1723,7	19,3	4204
2016	370	287	217,3	1369,4	16,4	3815

The most informative, in our opinion, is the qualitative indicators of staffing for the education development in the field of physical culture and sports, such as: the percentage of employees with academic degrees and academic titles; percentage of employees having the sports title of a master of sports and higher sporting titles; percentage of Honored Coaches of Ukraine; percentage of specialists having the appropriate basic and complete higher specialized education; percentage of young professionals who graduated from specialized universities and started working in the field of physical culture and sports.

As a positive trend, the growth of qualitative indicators of training of the specialists having a special higher education in physical culture and sports should be noted. Thus, in 1992, their total number was 70.3%, in 2009 - 71.6%, in 2013 - 77.5%, and by 2016 their number was 54,527 people, which is 81.8% of the total number of regular staff in the field of physical culture and sports in Ukraine. The positive trends in the development of education in the field of physical culture and sports include the improvement of the system of physical culture and health work among different groups of the population. So, as of 2016, 202 "Sport for all" physical health centers and 31 centers of physical culture and sports for disabled persons "Invasport", which are visited by more than 467 thousand people (table 3), were created in Ukraine. They provided new jobs and are staffed by highly qualified professionals.

Unfortunately, most of the qualitative indicators of education development in the field of physical culture and sports are not reflected in the statistical reporting. Given the accessibility, reliability and level of detail, we have selected indicators for the assessment of the level of education development in the field of physical culture and sports in Ukraine that are reflected in the state statistical reporting in the field of education,

higher education and physical culture and sports, for example: the number of administrative workers in the field of education of physical culture and sports; number of teachers, trainers and instructors conducting physical education classes; total population, students; number of students covered by physical education and educational work (Table 1, 2, 3).

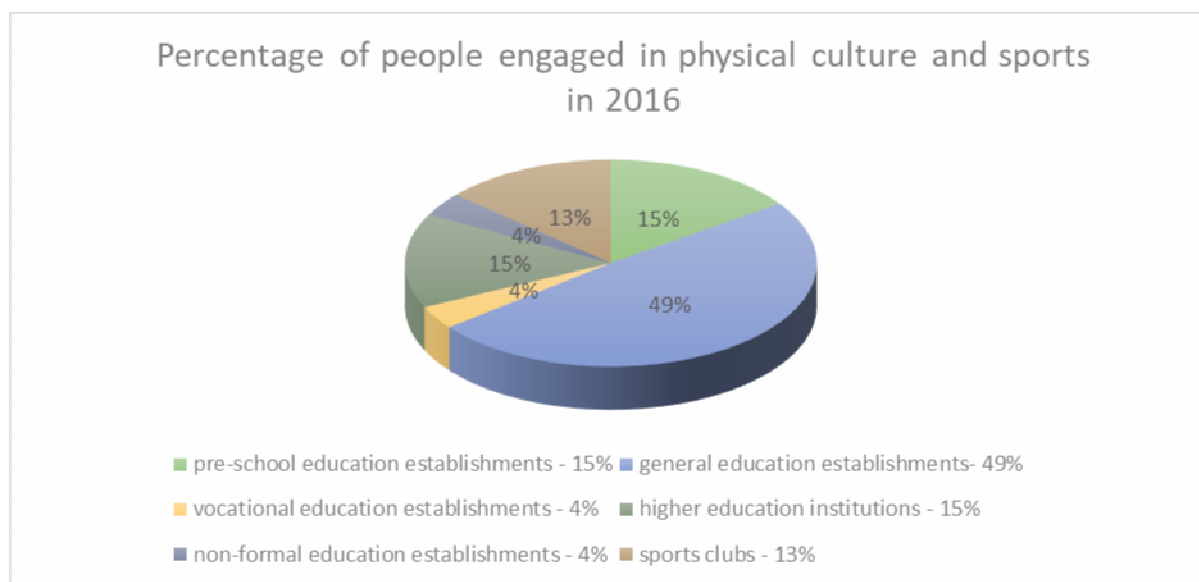
**Table 3.** Physical and recreational activities among students in 2016

Indicator	Number of people who study	Number of people who are engaged in physical culture and sports	Including:		Number of people who attend physical culture and sports classes
			Women	Disabled people	
Pre-school education	1268251	517167	251994	2120	1091707
General education	3703158	1664505	806285	15698	3557477
Vocational education	276369	123587	41391	623	258720
Higher education	1180829	500695	221116	2798	722895
Non-formal education	412906	125116	45860	548	-
Sports clubs	-	460042	118218	7399	-
Educational establishments of enterprises (Total)	<b>10673773</b>	<b>4532888</b>	<b>1767764</b>	<b>36189</b>	<b>5630799</b>

During the study, we determined that the high quality of human resourcing development affects the popularization of sports, provides professional service in the sphere of physical training, fostering the values of physical culture and sports, being the mechanism that ensures the transfer of knowledge and skills about healthy lifestyle for future generations, forming a high level of physical culture in society.

The coefficient of stability relation between the total number of children of pre-school education and the number of people who attend physical training classes as of 2016 is 0.85; between the total number of students of general secondary education and the number of persons attending physical education classes - 0,96; between the total number of students of vocational education institutions and the number of persons attending physical education classes - 0,93; between the total number of students of HEIs and the number of persons attending physical education classes is 0.61.

The coefficient of stability relation between the total number of students of general educational and the total number of those engaged in physical education is 0.42; between the total number of students of vocational education and the total number of those engaged in physical education - 0,44; between the total number of students of higher education and the total number of those engaged in physical education and sports - 0,42. (fig. 2).



**Figure 1:** Distribution of people engaged in physical culture and sports in 2016 between educational establishments

It should be noted that the coefficient of stability relation between the total number of students in preschool, general and vocational education institutions and the number of persons attending physical education classes as a whole is consistent with the corresponding indicators of the EU countries. At the same time, the coefficient of stability between the total number of students of higher education and the number of people attending physical education classes in Ukraine is 1.5 times lower than in the leading EU countries. A similar trend is observed with indicators that characterize the participation of students in independent (mass sports)

classes in physical culture and sports (Vavreniuk, 2014; Kononovych, 2013). Such indicators show that management activity in personnel education development training in the field of physical culture and sports should be directed primarily to the system of higher education in Ukraine and physical activity in the system of sports clubs of higher educational institutions and athletic clubs at the place of residence.

### Discussion

The European integration processes that take place in Ukraine require a focused and systematic work towards approximation to the European standards of education, which should be provided by specialists of the appropriate level of qualification.

A comparative analysis of the human resourcing in the field of physical culture and sports of the EU and Ukraine demonstrated by the scientists showed their identity. The difference lies in specialists' training terms; contents of study and its variability; mobility of the system of specialists' training; development of instructors' training system (Vavreniuk, 2014, Mudryk, Oliinyk, Prykhodko, 2001).

A number of authors (Imas, Michuda, 2008; Mudrik, 2001; Oliinyk, 2004; Prykhodko, 2001 et al.) state that a large number of organizational structures in the field of physical culture and sports in Ukraine and their management bodies results in poor efficiency of the physical education system, leading to the misuse of available financial and economic resources, requires the maintenance of a large administrative apparatus, which adversely affects the development of education in the field of physical culture and sports.

Some researchers (e.g. Hasiuk, 2011), note that along with the positive trends in human resourcing in the field of physical culture and sports, there is a decline in educational activity in the training of instructors in physical education and certain sports, lowering the indicators of non-Olympic sports trainers staffing. Another scientist (Dutchak, 2008), emphasizes the need for the development of such a direction of educational activity as "sport for all" and its corresponding staffing, the gradual transition from sports associations to the club system of development of physical culture among the general population. Issues concerning the level of training of the specialists in the field of physical educational and sports and their competitiveness in the labor market remain insufficiently researched.

### Conclusions

According to the results of the study of social and regulatory aspects of human resources management in the field of physical culture and sports, we can draw the following conclusions:

- the current state of human resourcing in the field of physical culture and sports requires adoption of measures of regulatory, organizational and socio-economic nature, aimed at achieving structural changes, internal balance and optimization both in the this sphere as a whole and in its individual subsystems;

- the dynamics of indicators of human resourcing of educational institutions in the field of physical culture and sports of Ukraine for the period 1992-2016 shows that the total number of employees in the field of physical culture and sports fluctuated within 14%;

- due to the redistribution of employees according to the directions of activity, the following changes occurred: the number of secondary schools' physical education instructors decreased by 11.0%; heads and instructors of physical education of vocational schools decreased by 27,7%; instructors of physical education of higher educational establishments dropped by 11.5%; the number of instructors in the physical culture of village councils decreased by 96.3%.

- the process of the growth of the administrative apparatus took place (the number of employees of the executive bodies responsible for the sphere of physical culture and sport increased by 25.8%, the number of methodologists and instructors of children and youth sports schools increased by 33.2%). As a positive trend, we note that the number of physical culture specialists at pre-school educational institutions increased by 99.1%, and the number of trainers-instructors on different sports - by 6.4%;

- the coefficient of sustainability of the connection between the total number of pupils in pre-school, general education and vocational education institutions and the number of persons attending physical education classes as a whole is consistent with the corresponding indicators of the EU countries. At the same time, the coefficient of sustainability between the total number of students of higher education and the number of persons attending physical education classes in Ukraine is 1.5 times lower than that of the leading EU countries;

- the European integration processes taking place in Ukraine require the study of the experience of other countries that have gone through the process of European integration, alignment with the international standards of the normative, organizational, content, personnel, training and resource components of the management system of education development in the field of physical culture and sports.

**Conflicts of interest:** No conflicts of interest exist.

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