

# Risk Prevention as a Part of Professional Training of Future Physical Culture Teachers

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**Abstract:** The article describes the identification and clarification of risk prevention measures by physical culture teachers at educational institutions that are based on the methodology of personality development approach to education. The experiment included 314 students, future physical culture teachers, among them 110 girls and 204 boys aged 18 to 23. This study investigated the dynamics of the attitude towards the risk of students (by age and sex) during their stay at higher educational institutions according to a specially developed methodology that included the personal profile of G. Eisenck, the methodology "Hierarchy of Needs" modified by I. Akindinova and the questionnaire "Investigation of Preparedness for Risk » by A. Shmelev.

Summarizing the study analysis results the following conclusions can be drawn: preference of risk decreases with the age; the tendency to risk is lower in more experienced future teachers than in non-experienced ones; in girls the risk aptitude is realized under more certain conditions than in boys; the risk predisposition is more pronounced in a group than acting alone and depends on group expectations. During the period of studies at higher education institutions each future physical culture teacher developed his own potential for addressing the problems associated with risk prevention, their localization, minimization and elimination.

**Keywords:** *risk, risk culture, locus control, personality development approach, personal profile.*

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## Introduction

Physical culture occupies an important part in the preparation of future specialists for their professional activities, since physical exercises play a significant role in increasing and maintaining their ability to work. Physical culture is an integral part of the general culture of the mankind, representing a set of spiritual and material values that are created and used by society in order to develop youth physically, improve their motor activity. But at the same time, it is one of the risky lessons at educational institutions, where the traumatism of students is due to a complex of objective and subjective factors that provoke the emergence of risk situations. The term "risk" does not have a clear definition; its meaning varies from probability, chance, difference of the expected values results to unwanted events, danger, losses, uncertainty (Antonova, 2010; Byrnes et al., 1999). It is worth adding that this definition also coexists as a scientific concept in the sense of the possible danger of what might, but not necessarily happen. The probabilistic nature of the risk is due to the ambivalence of the risk inducing factors, that are the opportunities simultaneously combined in them, both destructive and developmental. That is, the probabilistic rather than fatal nature of the negative consequences of risk is emphasized. Significant contribution to safe education and upbringing of adolescents belongs to the teachers of the subject "Physical Culture". To minimize the negative impact of some risk situations at physical culture classes, they need appropriate knowledge of the elements of physical education, practical skills and abilities regarding the safe implementation of the latter at educational institutions of different levels.

Formation of methodical principles for safe education and upbringing of physical culture should be carried out by professionally trained specialists. However, their introduction can lead to dangerous consequences such as injuries, acute and chronic illnesses, psychological discomfort and even fatalities. Ukraine has established appropriate security requirements during physical education lessons at educational institutions in order to create certain conditions for maintaining health, preventing injuries and introducing health-saving organizational preventive measures. However, for their implementation it is necessary to take into account the relevant objective and subjective factors and, above all, the teachers' knowledge for preventing risk situations at the lessons of "Physical Culture". It is based on specific pedagogical educatory methods, ways, means, that collectively constitute well-developed and well-established methods of teaching and upbringing of students, future physical education teachers at higher education institutions (HEI). One of the methodological foundations for the

formation of such awareness is a personality development approach to learning, based on the human centism. The essentials of this methodology is the system of their knowledge, skills and abilities in conducting safe physical education classes at educational institutions.

**The aim of the study** is to establish and substantiate measures for preventing risk factors of professional activity of future physical culture teachers at higher educational institutions, based on the methodology of personality development approach to education and the creation of appropriate psycho-pedagogical and communicative situations; to identify the changes of the actual basic needs of students (material, safety needs, self-expression (self-actualization) that occurred during the impact on them of the educational environment and investigate the dynamics of their attitude to risk.

### **Material and Methods**

A sociological study was conducted to assess the impact of the higher institution educational environment on students at Admiral Makarov National University of Shipbuilding in order to determine their ability to prevent risks in their future professional activity. 314 students (future physical culture teachers) were enrolled in the experiment, including 110 girls and 204 boys aged 18 to 23.

**Methods:** The dynamics of students' attitude towards the risk at higher education institution was studied according to a specially developed methodology (according to age and gender). It included Eysenck Personality Questionnaire (EPQ), the methodology "Hierarchy of Needs (HN)" modified by (Akindinova, 2000) and the questionnaire "Investigation of Preparedness for Risk" by (Shmelev, 1996).

**Ethical approval:** Informed consent has been obtained from all individuals included in this study.

### **General Background of Research**

*Analysis of recent research and publications.* Personality developing approach involves development of students' potential abilities and capabilities, their professionally significant qualities. It directs the process of physical education to the creative adoption of their own activities, as well as the ability to apply them in solving health, educational and educatory tasks. For this, in addition to the complex of pedagogical, medical, biological, psychological and sociological knowledge in the field of physical culture, it is necessary to identify the role and place of physical culture in the educational

process, its interconnection and interaction with other educational subjects, while preserving the integrity of the learning process, in which each subject makes its own contribution to the harmonious development of the student's personality.

Some scholars studied the problems of positive impact of fitness technology on the formation of special physical qualities of the students (Zhamardiy, Shkola, Ulianova, Bilostotska, Okhrimenko, Griban, Prontenko & Bloshchynskiy, 2019). The research of O. Mozolev, O. Halus, I. Bloshchynskiy & R. Kovalchuk is devoted to the comparative analysis of human resources management of educational development in sphere of physical culture and sports (Mozolev, et al., 2019). Development of students' motivation for physical education and their physical fitness level is considered in the work of (Prontenko et al., 2019). Other scholars, namely O. Mozolev, I. Shorobura, L. Zdanevych, L. Hutsal, M. Marusynets & L. Kravchuk revealed in their study the influence of physical fitness of students on the quality of leisure organization in a sports and health tourism (Mozolev et al., 2020). Some details on formation of health preserving competence of students of higher educational institutions of information technologies specialties can be also found in the work of (Prsyazhniuk, Oleniev, Tiazhyna, Popov, Hunchenko, Parczevskyy, Pryimakov, Lyshevska, Krasnov, Ejder, Bloshchynskiy & Prontenko, 2019).

Ethical aspects of safety and prevention of risk situations are constantly a focus of attention of the researchers. Thus, the conditions for the development of professional pedagogical ethics (Josef et al., 2016) and ethics competence formation of the future physical culture teachers during their period of study (Bekh, 2003) provide a wide range of requirements, i.e. from following the medical rule "Do not harm" to their readiness to go for an optimal, justifiable risk. Readiness formation for secure self-realization requires adopting cultural norms and social values as well as developing such features of a safe student's character that include relevant behavior motives, target guides and action ways.

Ye. Ilyin has investigated the risk concept as a human activity in a situation of uncertainty, when information about its possible consequences is completely or partially missing (Ilyin, 2012). He has distinguished the following types of risks, such as intentional and unintentional, objective and subjective, real and imaginary, motivated and unmotivated, justified and unjustified, acceptable and inappropriate.

A lot of scientific works deal with the study of correlation between future specialist's personal features and their ability to act effectively in risk situations. In this context, the works of M. Kotik are of interest (Kotik,

1987). He has distinguished such features of character that affect a specialist's aptitude to taking risks, among them: emotional stability, ability to plan, predict, self-control; high ability to change directions; innovation; expectation of some productive results; personal temperament peculiarities.

L. Antonova et al analyzed the issues of risk management in social groups prone to uncertainty (Antonova, 2010). Investigating the risk in hazardous situations of the educational environment, the researchers identified two main types: motivated, manifested as pragmatic actions associated with calculations of success chances, and not motivated, which is characterized by risky actions of the subject with no external necessity. They consider motivated risk is a way to expand the scope of the individual own capabilities and maximize their potential (Harris et al., 2006, pp. 29–30).

Yu. Kozeletskii analyzed the link of risk behavior with certain surrounding factors and personality traits (Kozelevsky, 1979). He considered that a person, who is at risk for any reason or without it, is in general a personality that balances on the verge of positivity and destructiveness, even in case he sometimes achieves outstanding results. The scientist explains that the behavior strategy based only on the risk factor is a type of personality disorder. The degree of deviation and the attitude towards the acceptable level of risk in this case are determined by the culture of the society and the social group the person belongs to.

It should be added that scientists introduced such a concept as "risky culture". It is defined as a complex of thoughts, views, ideas, values, habits, traditions and customs on knowledge and practical skills of risk management (Harris et al., 2006, p. 6).

Taking into consideration all above mentioned, the risk is an integral indicator of possible actions and combines probability of an event and its quantitative characteristics, i.e. possible achievements or losses. Therefore, it requires recognition of the priority of life and health safety as the main human value. But such a paradigm is still not actively cultivated in sport, where the main slogan remains "Victory above all." However, we consider humanism to be the most important pedagogical strategy at educational institutions of all levels, in particular, formation of a value attitude towards life and health among students. The methodological basis of which, without any doubt, is a personality-developing approach to learning. In this context consideration will be given to the risk taken by physical education teachers at vocational education institutions in their own pedagogical work.

## Results of Research

The profession of a physical culture teacher involves a certain diversity in views, behavior, personal self-reflection, in the choice of forms, methods and techniques of pedagogical activity, as well as in situations of uncertainty. It is under such conditions that a teacher is able to interest and fascinate students, taking into account their individual characteristics, that, ultimately, determines the personality-developmental nature of education. In this regard, personal development is seen as the genesis of the functions that the individual consistently exercises, i.e. sense definition, interest and reflection, construction of his own concept "I am a teacher," necessity for safe professional self-realization. It is the personality developing approach to studying that promotes the effective assimilation of scientific terminology, theories, methods, pedagogical techniques, formation of dialogue communication and development of professional qualities in future physical culture teachers. It is characterized by the use of appropriate psychological, pedagogical, communicative situations. By the way, use of psychological and pedagogical situations involves communicative and emotional components that promote self-disclosure of future specialists as professionals. The theoretical basis characterizing this approach is the principle of communicative interaction introduced by A. Leontiev from the psychological point of view (Leontiev, 2005). The content of communicative situations should be focused on the achievement of pedagogy and psychology. For example, it is recommended to follow the concept of B. Skinner, according to which emotion-motivational relations in education are based on the desire to meet positive emotions in the process of overcoming various difficulties. In this case, the most important emociogenic factor is a feeling of success, recognized by all participants of the educational process. Creation of personal development situations requires that all receptions and learning tools help to gain experience in the context of future safe professional activities, as well as acquisition of personal security experience (Aven, 2012).

Much in the personality of a physical culture teacher is determined by the conscious choice of the profession, psychological preparedness for various activities, tendency of the individual for doing work properly. The subject "physical culture" is a responsible one in terms of the content and implementation of organizational, methodological, sanitary and hygienic requirements at educational institutions. Classes on the themes of the curriculum are carried out in different places, i.e. in a gym, on a sports ground, at a stadium, on a cross-country terrain; under different weather

conditions. Students must not only listen, watch, understand and memorize while exercising, but also act physically, repeatedly and persistently to perform tasks aimed at assimilating the components of physical exercises and developing their own physical qualities. It is clear that identifying such tasks we should take into account the individual characteristics of students. Thus, in order to prevent injuries during physical education classes future teachers should first determine for themselves possible causes, conditions and circumstances of students' trauma during planned exercises; they should elaborate behavioral recommendations and some exercise elimination in their further professional activities. Along with the common everyday life injuries, the so-called sports injuries occur at physical education classes. They can be of varying severity, often requiring medical surgeries.

As the main factors provoking the risk of injury at physical education classes, the following ones should be distinguished:

- individual features of students engaged in physical exercise;
- conditions of conducting classes, availability and quality of sports equipment;
- peculiarities of a particular kind of sports activity and its type.

Among the individual characteristics for possible decrease in the level of students' safety at physical education classes of the greatest importance are age, state of the nervous system, belonging to a certain psychotype and gender, psychological maturity and practical experience. Practice also shows that at educational institutions the largest number of injuries is observed at the beginning and end of the academic year, when students are not functionally ready for loads or are already in an overstressed state. There is a sharp rise in the risk of injury during the increased spread of infectious diseases that are often accompanied by various complications. Therefore, it is also related to security internal human factor that requires teacher's attention.

The conditions for conducting classes, sports equipment are important for preventing risk situations. Bad weather and insufficient lighting dramatically increase the risk of injury. Injuries can also result both from insufficient or inadequate size of the premises for certain physical exercises where the classes are conducted and from underestimation of special protective equipment. Equally, one must take into account the specifics of a particular kind of sports activity and the type of physical activity. During certain types of exercises, a physical culture teacher acknowledges all the tasks that can lead to specific injuries. In order to prevent injuries at physical education classes, students must follow the following rules:

- do workouts before each lesson in order to prevent strains and ruptures of muscles, ligaments and tendons;
- do not strive for immediate results, but improve your own results gradually, with no harm to health;
- have appropriate clothes, shoes, outfit;
- use rationally the sports facilities area during exercises;
- keep sufficient interval and distance while doing group exercises;
- learn the methods of keeping oneself safe;
- don't attend physical exercises classes without doctor's permission after an illness or trauma.

The guidelines to achieve active and creative life of full value and to facilitate physical development of youth are to stimulate students' healthy lifestyle aimed at physical and mental well-being. Physical education is characterized by the complexity in the use of means that include physical exercise, natural conditions and hygiene factors.

The use of natural conditions as a means of physical education is carried out in two directions:

- as complementary factors they supplement and increase the effectiveness of student's movements on their organism;
- as independent means of recovery and conditioning due to special procedures, sun, air and water baths that complement the work regime and educational activities, become a form of active rest, create positive emotions and increase the effect of recovery.

A large group of various means are hygienic factors that are conventionally divided into two subgroups. The first subgroup includes means that ensure the life and activity of a person beyond the process of physical education, i.e. the norms of personal and social hygiene, conveniences of life, study, work, nutrition, rest, in other words, the conditions for full-fledged exercises. The second group comprises the means involved in the process of physical education, such as optimization of the regime of tension and rest in accordance with hygiene norms, provision of rational nutrition, control of external conditions for physical exercises (air purity, adequate lightening, artificial aerosolization, functioning of sports equipment, comfortable clothes, etc.) and recovery after them (bath, shower, massage, etc.).

Taking into account all the above mentioned and applying methodology "Hierarchy of Needs" we have identified the relevance of student's basic needs: material, security needs, self-expression (self-actualization). The collected quantitative data were subjected to statistical



analysis. The analysis results are presented below in the gender and age profile.

**Table 1.** *Quantitative Scales of Research Methods*

Methodology "Hierarchy of Needs"	Material position	HN-material
	Need for security	HN-security
	Need for interpersonal connections	HN-connection
	Need to respect from outside	HN-respect
	Need for self-realization	HN-self-realization

Thus, Table 2 represents general descriptive statistics, Table 3 - statistics for female students under study, Table 4 - male students.

**Table 2.** *Descriptive Selection Statistics in General*

Scale	Selection size	Minimum	Maximum	Average	Median	Dispersion	Standard deviation	Asymmetry	Excess
Age	314	18,00	34,00	20,80	21,00	1,92	0,16	2,34	14,41
HN-material	314	0,00	22,00	6,03	4,00	5,29	0,44	1,40	1,48
HN-security	314	0,00	16,00	3,73	3,00	3,70	0,31	1,62	2,18
HN-connection	314	0,00	19,00	5,03	3,00	4,75	0,39	1,39	1,21
HN-respect	314	0,00	19,00	6,39	5,00	4,62	0,38	0,93	0,27
HN-self-realization	314	1,00	30,00	10,61	9,00	6,75	0,56	1,06	0,63

**Table 3.** *Descriptive Statistics of Female Sub-selection*

Scale	Selection size	Minimum	Maximum	Average	Median	Dispersion	Standard deviation	Asymmetry	Excess
Age	110	18.00	34.00	21.06	21.00	3.04	0.54	2.61	8.31
HN-	110	0,00	22,00	5,88	3,50	5,93	1,05	1,	1,7

Scale	Selectio n size	Minimu m	Maximu m	Averag e	Median a	Dispersio n	Standar d deviatio n	Asym metry	Exces s
material								64	2
HN- security	110	0,00	16,00	3,91	3,00	4,24	0,75	1, 49	1,3 9
HN- connectio n	110	1,00	19,00	4,84	3,00	4,41	0,78	1, 71	2,3 8
HN- respect	110	0,00	19,00	6,22	5,50	4,43	0,78	0, 76	0,1 2
HN-self- realizatio n	110	1,00	22,00	8,91	7,50	5,37	0,95	0, 74	- 0,40

**Table 4.** *Descriptive Statistics of Male Sub-selection*

Scale	Selecti on size	Minimu m	Maximu m	Avera ge	Media na	Dispersi on	Standar d deviat ion	Assymet ry	Exces s
Age	204	18.00	25.00	20.73	21.00	1.48	0.14	-0.23	-0.64
HN- material	204	0,00	22,00	6,07	5,00	5,12	0,48	1,27	1,17
HN- security	204	0,00	16,00	3,68	3,00	3,56	0,33	1,62	2,26
HN- connecti on	204	0,00	19,00	5,08	4,00	4,86	0,46	1,30	0,90
HN- respect	204	0,00	19,00	6,43	5,00	4,69	0,44	0,96	0,23
HN-self- realizatio n	204	1,00	30,00	11,10	9,00	7,04	0,66	1,02	0,41

Tables 5 and 6 demonstrate the results of comparing the average values between the groups of the respondents.

**Table 5.** *Comparison of Average in Gender Groups*

Scale	M ± m (girls)	M ± m (boys)	D-statistics	p-value
Age	21,062 ± 0,537	20,73 ± 0,138	1733,5	0,609

HN-material	5,875 ± 1,049	6,071 ± 0,481	1667,5	0,503
HN-security	3,906 ± 0,749	3,681 ± 0,335	1786,0	0,918
HN-connection	4,844 ± 0,779	5,08 ± 0,457	1831,0	0,914
HN-respect	6,219 ± 0,783	6,434 ± 0,441	1785,5	0,916
HN-self-realization	8,906 ± 0,949	11,097 ± 0,662	1510,5	0,156

Note: 1) the reliability of the differences between the mean values of the scales in the groups was checked up using the Kolmogorov-Smirnov test; 2) the symbol\* indicates significant differences at the level of  $p < 0,05$ , the symbol \*\* - at the level  $p < 0,01$ .

**Table 6.** Comparison of Average in Age Groups

Scale	M ± m (2 <sup>nd</sup> year of study)	M ± m (5 <sup>th</sup> year of study)	D-statistics	p-value
Age	19,00 ± 0,101	21,859 ± 0,167	20,0	0,001***
HN-material	5,849 ± 0,823	5,989 ± 0,495	2129,0	0,283
HN-security	3,83 ± 0,535	3,678 ± 0,385	2369,5	0,949
HN-connection	5,906 ± 0,734	4,556 ± 0,46	2676,5	0,221
HN-respect	6,321 ± 0,704	6,422 ± 0,461	2238,5	0,540
HN-self-realization	10,925 ± 1,005	10,411 ± 0,686	2489,0	0,665

Note: 1) the reliability of the differences between the mean values of the scales in the groups was checked up using the Kolmogorov-Smirnov test; 2) the symbol \* indicates significant differences at the level  $p < 0,05$ , the symbol \*\* - at the level  $p < 0,01$ , the symbol \*\*\* - at the level  $p < 0,001$ .

Table 7 provides descriptive statistics of quantitative scales for the sub-selection of the second-year-students, and Table 8 demonstrates statistics for the 5th-year-students.

**Table 7.** Descriptive Statistics in the Sub-selection of the 2nd-year-students

Scale	Selecti on size	Minimu m	Maximu m	Avera ge	Media na	Dispersi on	Standar d deviati on	Assymme try	Exce ss
Age	158	18,00	21,00	19,00	19,00	0,73	0,10	0,29	-0,40
HN- material	158	0,00	22,00	5,85	4,00	5,99	0,82	1,47	1,25
HN-	158	0,00	16,00	3,83	3,00	3,89	0,53	1,31	1,13

Scale	Selecti on size	Minimu m	Maximu m	Avera ge	Media na	Dispersi on	Standar d deviati on	Assymme try	Exce ss
security									
HN- connecti on	158	0,00	19,00	5,91	4,00	5,35	0,73	1,00	-0,09
HN- respect	158	0,00	19,00	6,32	5,00	5,13	0,70	0,91	-0,13
HN-self- realizatio n	158	1,00	30,00	10,92	9,00	7,32	1,01	1,05	0,59

**Table 8.** *Descriptive Statistics in the Sub-selection of the 5th-year-students*

Scale	Selecti on size	Minimu m	Maximu m	Avera ge	Media na	Dispersi on	Standar d deviati on	Assymme try	Exce ss
Age	146	21.00	34.00	21.86	22.00	1.60	0.17	5.40	35.55
HN- material	146	0,00	22,00	5,99	5,00	4,69	0,49	1,27	1,39
HN- security	146	0,00	16,00	3,68	3,00	3,65	0,39	1,78	2,70
HN- connecti on	146	0,00	19,00	4,56	3,00	4,36	0,46	1,60	2,23
HN- respect	146	0,00	19,00	6,42	5,50	4,37	0,46	0,91	0,37
HN-self- realizatio n	146	2,00	28,00	10,41	9,00	6,51	0,69	1,02	0,33

The analysis of the differences in the correlation structures between gender groups (Tables 9, 10) proves the fact that young men demonstrate a more complex system of connections among the scales of the Hierarchy of Needs methodology.

**Table 9.** *Correlation Matrix of Scales of Methodology for Sub-selection of Boys*

<b>Correlation Matrix</b>					
HN-material	1	<b>0,004**</b>	1,000	0,791	<b>0,046*</b>
HN-security	<b>0,678</b>	1	0,611	0,104	0,647
HN-connection	0,221	0,502	1	1,000	1,000
HN-respect	0,489	0,575	0,453	1	<b>0,004**</b>
HN-self-realization	<b>0,587</b>	0,499	0,327	<b>0,677</b>	1

Note: under the diagonal in the table are the values of the pair coefficients of the correlation of Pearson, above the diagonal there is the corresponding p-value. Herewith, \* means statistical significance at the level of  $p < 0.05$ , \*\* - at the level  $p < 0.01$ , \*\*\* - at the level  $p < 0.001$ .

**Table 10.** *Correlation Matrix of Scales of Methodology for Sub-selection of Boys*

HN-material	1	<b>0,001***</b>	<b>0,001***</b>	<b>0,004**</b>	<b>0,046*</b>
HN-security	<b>0,546</b>	1	0,876	<b>0,001***</b>	0,629
HN-connection	<b>0,431</b>	0,261	1	1,000	1,000
HN-respect	<b>0,386</b>	<b>0,493</b>	0,107	1	<b>0,004**</b>
HN-self-realization	<b>0,325</b>	0,270	0,236	<b>0,387</b>	1

Note: under the diagonal in the table are the values of the pair coefficients of the correlation of Pearson, above the diagonal there is the corresponding p-value. Herewith, \* means statistical significance at the level of  $p < 0.05$ , \*\* - at the level  $p < 0.01$ , \*\*\* - at the level  $p < 0.001$ .

In girls the key role is played by a chain of statistically significant correlations HN-material - HN-security - HN-self-realization - HN-respect. All coefficients of correlation are positive and more than 0.5 modulus, that is, the connection in all cases is strong. Thus, for the respondent girls, there are two related vectors in the hierarchy of needs. The first, which combines material security and physical security, characterizes the need for security. Obviously, the second vector characterizes the need for a particular social status.

On the other hand, in the correlation matrix of the methodology "Hierarchy of Needs" for boys (Table 10), the main role is played by the scale of material needs, as other scales of the methodology correlate from it positively. Correlation between HN-respect and HN-realization in adolescents is almost two times weaker than in girls ( $r = 0.378$  against  $r = 0.677$ , respectively). Another difference is the positive correlation between

the need for security and the need for respect ( $r = 0.493$ ). We consider this indicates that for young people, social status and "weight" are one of the important components of a comprehensive need for security.

**Table 11.** *Correlation Matrix of Methodology Scales for the 2nd-year-Students Subselection*

<b>Correlation Matrix</b>					
HN-material	1	<b>0,001***</b>	0,421	0,154	0,385
HN-security	<b>0,777</b>	1	0,145	<b>0,004**</b>	0,845
HN-connection	0,409	0,447	1	$\approx 1$	$\approx 1$
HN-respect	0,444	<b>0,546</b>	0,292	1	$\approx 1$
HN-self-realization	0,412	0,382	0,348	0,334	1

Note: under the diagonal in the table are the values of the pair coefficients of the correlation of Pearson, above the diagonal - the corresponding p-value. Herewith, \* means statistical significance at the level of  $p < 0.05$ , \*\* - at the level  $p < 0.01$ , \*\*\* - at the level  $p < 0.001$ .

**Table 12.** *Correlation Matrix of the Scale of the Methodology for the 5th-year-Students Subselection*

<b>Correlation Matrix</b>					
HN-material	1	<b>0,001***</b>	<b>0,010**</b>	<b>0,016*</b>	0,132
HN-security	<b>0,466</b>	1	$\approx 1$	<b>0,001***</b>	$\approx 1$
HN-connection	<b>0,411</b>	0,213	1	$\approx 1$	$\approx 1$
HN-respect	<b>0,401</b>	<b>0,484</b>	0,079	1	<b>0,001***</b>
HN-self-realization	0,348	0,251	0,170	<b>0,510</b>	1

Note: under the diagonal in the table are the values of the pair coefficients of the correlation of Pearson, above the diagonal there is the corresponding p-value. Herewith, \* means statistical significance at the level of  $p < 0.05$ , \*\* - at the level  $p < 0.01$ , \*\*\* - at the level  $p < 0.001$ .

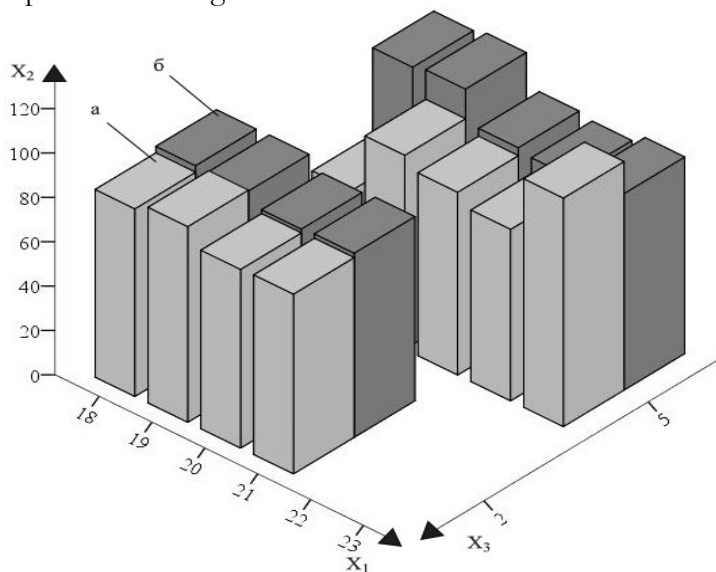
The comparison of correlation matrices by the method "Hierarchy of Needs" (Tables 11 and 12) provides a number of interesting conclusions. So, the need for material things plays a very important role for both subgroups. In this case, however, statistically significant for the second-rate sub-series is only the HN-material link - HN-security ( $r = 0,777$ ,  $p < 0,001$ ), and for the 5th-year-students there are correlations of average strength ( $r \approx 0.4$ ) as well as with the indicators of HN-connection - HN-respect. At the same time, as can be seen in Table 12, roughly the same relationships can occur for the 2nd-year-students, but the obtained data is not sufficient for the mathematical proof of the significance of the correlations.

Another interesting fact is the correlation between the need for security and the need for respect. For the 2nd-year-students' respondents the correlation coefficient is  $r = 0,546$  ( $p < 0,01$ ), for the 5th-year ones it is

slightly less -  $r = 0,484$  ( $p < 0,001$ ). Finally, for the 5th-year-students the correlation between the need for self-realization and the need for respect is characteristic ( $r = 0.510$ ,  $p < 0.001$ ), whereas for the-2nd-year ones the correlation coefficient is statistically insignificant at a rather high absolute value ( $r = 0.334$ ). On the whole, as a result of the comparison, one can conclude that by the 5th year of study, the relationship between the needs that have emerged earlier is strengthened and grouped around the needs of material goods, self-realization and respect for others.

Certainly, future physical culture teachers of vocational education institutions must master stable, professional-oriented physical education knowledge, skills and abilities, in addition to acknowledging factors that provoke risk of injury, possible causes, conditions and circumstances of traumatization of pupils, rules and a set of appropriate means for preventing injuries at physical education classes, so that to be motivated to further self-improvement. Also, they must have a formed value attitude to life and health, which is reflected in professional activities.

The influence of the educational environment on the students was studied according to a specially developed methodology, which included a personal profile according to G. Eisenck and a questionnaire entitled "Investigation of readiness for risk" by A. Shmelev (Shmelev, 1996). The results are presented in Fig. 1



**Fig. 1.** Comparative characteristics of changes in students' risk predisposition by age and sex in HEI: a - girls; b - boys; X<sub>1</sub> - the age of students; X<sub>2</sub> - the number of points for assessing the students' risk predisposition

While interpreting the results, it was determined that a greater tendency for students to take risks indicates their determination, and sometimes adventurism. Moderate readiness for risk behavior in situations involving elements of danger, possible adverse consequences in case of failure, such as the threat of loss, injury, failure. The results of the testing reflect the attitude of students to risky actions (hazard generation).

As we see in Fig. 1 changes in the characteristics of predisposition to risk, girls in the studied age are more responsible and attentive (according to the Hierarchy of Needs method modified by Akindinova (2000) a vector that combines material security and physical security, characterizes the need for security).

The boys also do not demonstrate the rapid dynamics of reducing risk behaviors (according to the Hierarchy of Needs method, there is a positive correlation between the need for security and the need for respect ( $r = 0.493$ ). In our opinion this indicates that for young men, social status and "weight" are one of the important components of a comprehensive need for security that stimulates risky behavior). We consider such a situation is due to the fact that the second-year-students have a poorly differentiated view of the future specialty. Subjective knowledge of professional and pedagogical activity by future teachers of the subject "physical culture" leads to incomplete understanding of the complexity of all components of its assimilation. Further theoretical and practical mastery of the content of vocational training contributes to reducing the level of students' inclination to risk.

In addition, application of the personality developing approach to studying, taking into account the previously identified peculiarities of pedagogical interaction (creation of appropriate psychological and pedagogical and communicative situations), gave students the opportunity to gain a safety professional experience up to the fifth year. They start developing scenarios for holding classes and conduct first lessons for pupils. They also reflect the acquired knowledge and skills. They analyze the experience acquired during five years of educational-professional interaction (the correlation between need for security and the need for respect decreases, the connection between the need for security and the need for respect increases). Finally, they come to the conclusion about the lack of assimilation of certain disciplines from vocational training for the implementation of effective pedagogical activities. That is, they still need professionally important qualities and vocational and pedagogical competencies that will give them an opportunity to implement themselves



successfully in the profession. In our opinion this leads to a decrease in the level of predisposition to risk that is demonstrated in Fig. 1.

## Discussion

Summarizing the results of the analysis of the study, the following conclusions can be drawn:

1. With age, the level of risk predisposition decreases, while more experienced future teachers tend to risk less than those who are not experienced. These findings do not contradict the findings of Steven M. Albert and John Duffy who claim a greater risk aversion at an older age (Albert & Duffy, 2012).

However, it is necessary to conduct research in all age groups of physical education teachers because, according to A.K. Josef, D. Richter, G.R. Samanez-Larkin, G.G. Wagner, R. Hertwig, R. Mata, the periods of young maturity and old age were the least stable in risk susceptibility during an adult life (Josef et al., 2016), and R. Mata, A.K. Josef, G.R. Samanez-Larkin, R. Hertwig consider in their meta-analysis that elderly people are at a greater risk compared to younger adults when the training lead to a loss of risk but they are more prone to risk when training lead to risky situations (Mata et al., 2011).

2. In girls, the predisposition to risk is actualized under more specific conditions than in boys. This is confirmed by the findings of C. R. Harris, M. Jenkins, D. Glaser, in particular, that men and women differ in the likelihood and severity of adverse effects and are less prone to risk (Harris et al., 2006), but with time the difference is reduced (Bezyazychnyy, 2016).

3. In a group, the predisposition to risk is more pronounced than in individual actions, and depends on group expectations.

This conclusion is made during observations of students and is the focus of our further research.

## Conclusions

Therefore, nowadays the task of vocational education is not only socialization and professionalization of physical culture teachers, but also their adaptation to the conditions of their future professional activity. And since this profession has certain potential hazards, the issues related to security at the personal level are raised to the fore. Thus, it is necessary that every future physical culture teacher develops during their studies at the higher education institution their own potential for addressing the problems associated with risk prevention, their localization, minimization and

elimination. They should be aware of and apply risk prevention measures during physical culture lessons at vocational education institutions which are based on the methodology of a person-developing approach to learning.

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