

UDC 378.147=371.3/004.67

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Introduction of means of electronic study in the system of the higher education

Abstract. Purpose: to estimate results of introduction of means of “electronic study” at physical training of students of Simon Kuznets Kharkiv national university of economics. **Material and Methods:** the research was conducted during 2013/14 in KhNUE among students of the first and second courses. In general for about 800 students took part in the research. **Results:** the system of the remote study (SRS) Chamilo is characterized; the algorithm of introduction of SRS Chamilo in physical training of students is developed, applied and analysed; the analysis of the empirical data obtained as a result of the research is carried out. **Conclusions:** it is proved that SRS Chamilo is a platform which completely meets the demands which are made to the modern software, and can be used in physical training of students. The algorithm of its introduction to the noted sphere is logical and complete; it is established that there is an actual question of studying of motives of students of rather regular classes of physical training and sport, and also uses of means of “electronic study”; conclusions of scientists are confirmed that “electronic” communication can’t replace “alive” one, and can be only its addition.

Keywords: physical culture, sport, students, electronic study, introduction, software.

Introduction. The modern trend in the development of education – is a transition from conservative educational system to advancing - has to be based on the advancing formation of the information space of education and wide use of information technologies, which are creation in higher educational institutions of the powerful information infrastructure with the developed information and computer educational environment, introduction of innovative methods, means and forms of vocational training of future experts in higher education [14].

Informatization as the leading tendency of the social and economic progress of the developed countries is the objective process in all areas of the human activity, including in the vocational training of experts. Informatization of education – a component of this process - is the system of methods, processes and program technical means which are integrated for the purpose of collecting, processing, storage, distribution and use of information in interests of its consumers. The purpose of informatization of education consists in a global intensification of the intellectual activity due to the use of new information technologies [1, p. 73]. The development of new approaches is necessary to contents, forms and methods of the vocational training of experts of a new formation, introduction in the teaching and educational process of higher educational institutions of modern information technologies [4, p. 13; 8, p. 6].

L. V. Philenko in the work [12] notes that the use of information technologies is an effective remedy of optimization and improvement of quality of training of students in the educational process. It investigated the interrelation of individual cognitive qualities of students with the level of assimilation of training material means of computer technologies and it confirmed their direct influence on the level of assimilation of a training material. Authors [2; 5] specify in the researches that the special place among means of information technologies of training is taken by the computer training systems. Such systems give the chance to students to study material independently, having processed it in the interactive mode.

Studying of the innovative pedagogical experience and the analysis of scientific and methodical literature showed that the use of modern communicative and information technologies is the most important reserve of improvement of the system of multilevel education. The analysis of a condition of a question shows that a due application wasn't found yet through objective and subjective reasons in the system of physical culture and sport [7] at the present stage of information and communicative technologies. A number of researchers dealt with problems of introduction of means of “electronic training” in physical training of students: V. S. Ashanin (2011); V. A. Druz (2005); A. I. Marakushin, A. G. Piddubny, V. V. Ryedin (2014); A. Malakhovsky (2013); L. V. Philenko (2007) and others. However its insufficient study caused the formulation of a subject and a statement of the research objective.

Communication of the research with scientific programs, plans, subjects. The research is executed in the direction “Innovative methods and technologies in physical training of different groups of the population” of the passport of specialty 24.00.02.

The objective of the research: to estimate results of introduction of means of “electronic training” at physical training of students of KhNUE of S. Kuznets.

The tasks of the research:

1. To characterize the system of remote study (SRS) Chamilo.
2. To develop, to apply and to analyze algorithm of introduction of SDL Chamilo in physical training of students of KhNUE of S. Kuznets.
3. To analyze the empirical data obtained as a result of the research.
4. To draw conclusions on the research subject.

Material and methods of the research. In the research the following methods were used:

- *theoretical*: analysis and generalization of scientific and methodical, and also special literature and the materials which are posted online on the research subject.

- *empirical*: remote questioning; pedagogical experiment; methods of mathematical statistics. The multipurpose criterion of *F* Fischer (angular transformation of Fischer) was used for the comparison of parts expressed as a percentage. The essence of criterion consists in the definition of what part of supervision in this selection is characterized by effect which is interesting for the researcher, and what share isn't characterized by this effect. As for the pedagogical researches the significance value (*P*) makes 0,05, the received data of a value *F*_{emp.} on the basis of the analysis of experimental are compared to a critical value of statistics of *F*_{cr.} = 1,64 at *P* = 0,05; *F*_{cr.} = 2,31 at *P* = 0,01 [10]. The research was conducted

during 2013/14 in HNUE of S. Kuznets among students of the first and second courses. About 800 students in total took part in the research.

Results of the research and their discussion. Learning management systems (learning management systems - LMS). Learning management systems are usually intended for control of a large number of students. Their feature is that they allow watching training of users, storing their characteristics, counting a number of actions on certain sections of the site, and also to define the time which is spent by the student on passing of a certain part of a course. These systems allow users to be registered for passing of a course. Any information on the current events and the necessary reporting are sent automatically to the registered users. Students can be organized in groups. Besides, there is a possibility of examination and online communication. The management of the content of electronic courses presents to possibility of the placement of electronic training materials in various formats and manipulations by them. Usually such system includes interface with a database which accumulates the educational content, with possibility of the search in keywords. In independence of a type of a program platform the following requirements are imposed to them: *reliability in operation; safety; convenience and administrations; modularity; ensuring access* [3].

In HNEU of S. Kuznets, by order of the rector, all subject matters have to be supported by systems of distance learning, in independence of a subject cycle and a form of education. The chair of physical training and sport of HNUE of S. Kuznets chose as such SRS Chamilo for which introduction at university the department of economic cybernetics is responsible, provided with a full scientific and methodical complex and maintenance.

System of distance learning of Chamilo. SRS Chamilo is in the open access and is qualified as "free software". As for the educational process, now more than 250 000 students use SRS Chamilo worldwide. The main instrument of interaction of a teacher and a student in Chamilo system is the independent discipline. At the creation of discipline on a platform a teacher becomes her lecturer and gets access to numerous tools, allows creating the personalized educational environment. It has an opportunity: to import or create documents (audio, video, images) and to publish them, to form tests, examinations and system of self-assessment, to develop or import working plans (modules), to give an opportunity to hand over works in on-line mode, to describe purposes, tasks and possibilities of a discipline in various sections.

Also there is an opportunity to communicate with the help of forums or by means of instruments of a direct communication (chat), to publish announcements, to add references, to create working groups, to participate in virtual meetings (by means of videoconferences), to operate notes by means of a diary of notes, to create polls, to add Wiki for the joint creation of documents with possibility of their discussion, assessment, press, export, and also with possibility of a subscription to updating, to use a glossary, a calendar, to operate projects, to keep up with statistics of each of participants of a discipline and to provide continuous functioning of a discipline, to note attendance, to keep a magazine of a progress. The control of platform tools, and also its administrations are simple and evident as SRS Chamilo doesn't demand any serious technical skills and abilities. However It should be noted that at similar simplicity of management instruments of a discipline have rather wide functionality and allow a teacher to create the effective remote educational process [15].

All SRS Chamilo tools are divided into three groups (according to their functionality):

- tools allowing to create the educational content of a discipline;
- tools, realizing the process of communication between students, and also students and teachers;
- tools which are intended for control and management of a discipline.

The realization of management of communication within SRS Chamilo is realized by means of instruments of communication, and also services of social groups. The purpose of the main instruments of communication of the Chamilo platform is similar to other systems of distance learning extended today (Moodle, Claroline, Dokeos, Saka, etc.). However there are tools for communication with unique expanded opportunities at the system of SRS Chamilo. So, the tool "Attendance" allows forming the report on attendance of a discipline by students, both during all semester, and for a certain date. The creation of separate lists of attendance of practical and theoretical training is also possible. The tool of the "Group" allows a teacher to create groups of students and to appropriate them various access rights to tools, documents, files and other opportunities of a discipline. Except various tools within a separate discipline, promoting the creation of the effective educational environment, SRS Chamilo provides to teachers and students instruments of management of a personal profile and a social network. In the menu of a social network such opportunities as an exchange of personal messages, creation of groups of users, search and addition of "friends", creation of social groups etc. are available. The system of monitoring which belongs to a number of the major elements, an appointment of which are the collecting, the processing and the analysis of information about a condition of the educational process. The realization of monitoring of the educational process in Chamilo is enabled by means of the tool "Statistics". By means of "Statistics" a teacher can receive a full report on activity and success of each of students of a discipline [13, p. 232-233].

Algorithm of introduction. *Algorithm* is a strict and logical sequence of actions for the solution of any task [11]. Introduction – is a distribution of innovations, achievements of a practical use of progressive ideas, inventions, and results of scientific researches [9].

Introduction of SRS Chamilo happened on the planned algorithm and the constant control of its administrator. All stages of introduction had scientific-methodical and peopleware.

The purpose of physical training is a formation of physical culture of a student as the system and the personality of integrated qualities, the integral component of the general culture of a future expert capable to realize it in educational, social professional activity and family in higher education institution [6].

According to our assumption, the introduction of means of "electronic training" in physical training of students of HNUE of S. Kuznets has to be positive to affect some components of physical culture of the identity of students, namely: *educational-informative, motivational-valuable and practical. The educational-informative* component has to be shown in an attempt to gain disciplinary and interdisciplinary knowledge. In the educational process it can be reflected in a number of the registered students in SRS Chamilo, "actions" to a discipline "Physical training", appeals to the content of a discipline

Table 1

The analysis of algorithm of introduction of SRS Chamilo on stages

| | |
|-----------|--|
| IS | I. Acquaintance with a methodical grant «The guide of a teacher» concerning the use of SRS Chamilo. |
| R | The scientific and pedagogical structure of the chair of physical education and sport, and students of HNUE of S. Kuznets. |
| D | The methodical grant on the use of a platform, which is translated from English by the department of economic cybernetics of HNUE of S. Kuznets, has some differences with the platform interface. |
| IS | II. Performance of settings of a user of SRS Chamilo. |
| R | Administrator of a discipline and administrator of a platform |
| D | Some settings are difficult for understanding in the connection with features of the translation into Russian therefore there are difficulties with their realization and correctness of their use (for example, sending invitations in the tool "Polls"). |
| IS | III. Filling of the content of a discipline «Physical training». |
| R | The scientific and pedagogical structure of the chair of physical education and sport and administrator of a discipline. |
| D | 1. Loading of text files in some tools ("The description of a discipline", "Tasks") has a limit on a quantity of symbols. 2. All unfilled tools are necessary to be done imperceptible for users, in a final version as users can start using "draft copies". 3. When copying a text in any tool from WORD, a font size and its quality automatically changes, without a participation of a developer. |
| IS | IV. Consideration at lectures (seminars) on a discipline «Physical training» of organizational issues concerning the use of SRS Chamilo. |
| R | The scientific and pedagogical structure of the chair of physical education and sport. |
| D | The part of students has no Internet access in the places of residence. |
| IS | V. Registration of students and teachers on SRS Chamilo and a discipline «Physical training». |
| R | The scientific and pedagogical structure of the chair of physical education and sport and students of HNUE of S. Kuznets. |
| D | 1. At registration many students are registered only on SRS Chamilo (forget about registration on a discipline «Physical training») 2. Universality of registration on all disciplines which are placed on SRS Chamilo, doesn't allow each administrator of a discipline to dispose of it at discretion, and it is necessary to adhere to «uniform corporate ethics». |
| IS | VI. Creation of groups on types of physical activity (academic groups). |
| R | Administrator of a discipline. |
| D | At registration many students are registered without an indication of a code of the academic groups. It creates difficulties when forming groups of users of a platform. |
| IS | VII. Implementation of interaction between subjects of the educational process. |
| R | All participants of educational process. |
| D | Some students at registration on a platform specify electronic boxes which they don't use therefore the link to the message they don't receive by e-mail. |
| IS | VIII. Administration of a discipline. |
| R | The scientific and pedagogical structure of the chair of physical education and sport, administrator of a discipline and administrator of a platform. |
| D | 1. When mailing messages, notices, announcements, tasks there is a limit on a number of sendings which depends on commercial arrangements with suppliers of a hosting. At an excess of a limit, the server is overloaded and blocks sendings of messages. Temporarily this service can be inaccessible. 2. Some tools, such as «Statistics» and «Users», don't allow exporting participants directly in the created groups of students. 3. The tool "Polls" doesn't allow doing mailing on groups. It is necessary to add each surname from the general list manually. |

Note. IS – introduction stage; R – responsible for a stage; D - difficulties which arose at introduction.

and active links. *Motivational and valuable* - in the valuable relation of students to physical training and sport, and practical - in the active participation of students in studies and sports and mass actions.

The analysis of some indicators of the activity of students on SRS Chamilo. The analysis of quantitative indices of the activity of students on SRS Chamilo was carried out on the basis of statistical data which are stored by a platform.

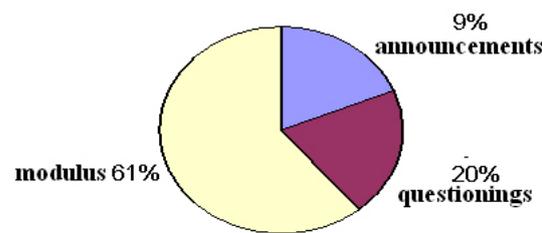
Table 2

The quantitative analysis of the activity of students on SRS Chamilo

| Indicators | Quantity of students | Total number of students | Percentage from the total number of students |
|--|----------------------|--------------------------|--|
| Registration of students on a platform | 798 | 1826 | 44% |
| Passing of a test on first aid rules | 161 | 798 | 20% |
| Passing of a test by safety regulations on classes on physical training | 149 | 798 | 19% |
| Questioning at the choice of a type of the organized physical activity on classes on physical training | 727 | 798 | 91% |

By the results, which are provided in the table, it is possible to note that less than a half (44%) of the student's contingent were registered on SRS Chamilo. It can testify that students insufficiently motivated to be registered. Further it is necessary to find out, what motives can induce them to it. However 91% percent from the registered students passed the questioning at the choice of a type of the organized physical activity on classes on physical training. It testifies that for students an important choice of the educational section within a discipline "Physical training". Considering the activity of students in test passing, it is possible to declare that it rather low (19-20% from the total of students).

The most often used tools



Pic. 1. The diagram of an advantage of tools of SRS Chamilo

The diagram shows that the main attention should be paid to a further development of modules (61%).

The analysis of the relation of students to classes on physical training and sport. The research was conducted in two stages: stating - among first-year students (October, 2013; n = 318) and forming - among second-year students (September - December, 2014; n = 257). The identification of changes in the relation of students of HNUE of S. Kuznets to classes on physical training and sport in the course of a teaching discipline "Physical training" with the use of SRS Chamilo was an objective of this research. The invitation to passing of the questioning was dispatched by means of tool "Polls" of SRS Chamilo. Students were offered to an answer a question: "What do you think of classes on physical training and sport?".

Analyzing these tables, it is possible to note that in September - December, 2014 there were some positive changes in the relation of students to classes on physical training and sport in comparison with October, 2013. The percent of students increased who considers these classes necessary and are engaged in them regularly in comparison with last year (1,46). "Another matters" (3,01) began to stir authentically a smaller number of students. It testifies that when planning the time, they take away on them its certain quantity. The percent of students decreased who don't see the need for classes (0,52). However the number of students increased to whom stir not concentration and laziness (0,95) and lack of conditions for classes (0,61). By the results of this research it is possible to note that the tendency to positive changes in the relation of students to classes on physical training and sport was outlined during the experiment. However it should be noted that less than a half of the interrogated students (42,4%) are engaged regularly. There is an actual question of the formation of motivation to regular trainings.

The analysis of participation of students in competitions of different level. The research was conducted in two stages: stating (October, 2013.; n = 318) and forming (September - December, 2014; n = 257). The analysis of the quantitative indices of the involvement of students of the educational section "Table tennis" to competitions of various levels on the basis of reporting materials was an objective of this research.

From the data of the table it is possible to say that the number of the students who were taking part in competitions remained almost invariable, even it decreased a little (0,99; 1,47). In 2014 the invitation to competitions were carried out via tools "Announcements" and "Calendar" of SRS Chamilo. Messages on measures which it was planned to carry out, were duplicated (with settings) in e-mail of students. However messages, were provided by verbal methods, and were minimized in comparison with 2013. From this it is possible to draw a conclusion that "electronic" communication can't replace "alive", and can only be an addition, that confirms statistical indicators.

Table 3

The comparative analysis of changes in the relation of students to classes on physical training

| Variants of answers | Quantity of answers, % | | | | | | | | | | Femp.* |
|--|---------------------------------|------|--------------------|------|-------|--|------|--------------------|------|-------|--------|
| | October 2013 (stating stage) | | | | | September - December 2014 (forming stage) | | | | | |
| | There is an effect | % | There is no effect | % | Total | There is an effect | % | There is no effect | % | Total | |
| What do you think of classes on physical training and sport? | | | | | | | | | | | |
| I consider it is necessary, to be engaged regularly | 115 | 36,4 | 203 | 63,6 | 318 | 109 | 42,4 | 148 | 57,6 | 257 | 1,46 |
| I consider it is necessary, but systematically I am not engaged because of unconcentration, laziness | 76 | 24,1 | 242 | 75,9 | | 71 | 27,6 | 186 | 72,4 | | 0,95 |
| I consider it is necessary, but there are no conditions for classes | 17 | 5,4 | 301 | 94,6 | | 17 | 6,6 | 240 | 93,4 | | 0,61 |
| I consider it is necessary, but another matters stir | 103 | 32,6 | 215 | 67,4 | | 55 | 21,4 | 202 | 78,6 | | 3,01 |
| I can't see the need for classes on physical training and sport | 7 | 2,2 | 311 | 97,8 | | 4 | 1,6 | 253 | 98,4 | | 0,52 |

Note. $F_{cr} = 1,64; P = 0,05$.

Table 4

The comparative analysis of the quantitative changes of indicators in the involvement of students of the educational section "Table tennis" to competitions

| Competitions | Quantity of participators, % from the total amount of students, who visits the educational section "Table tennis". | | | | | | | | | | Femp.* |
|--|--|------|--------------------|------|-------|-------------------------|------|--------------------|------|-------|--------|
| | September-December 2013 | | | | | September-December 2014 | | | | | |
| | There is an effect | % | There is no effect | % | Total | There is an effect | % | There is no effect | % | Total | |
| Championship among first-year students | 36 | 16,4 | 183 | 83,6 | 219 | 35 | 13,2 | 201 | 86,8 | 236 | 0,99 |
| Sports day among faculties | 85 | 38,8 | 134 | 61,2 | | 76 | 32,2 | 160 | 67,8 | | 1,47 |

Note. $F_{cr} = 1,64; P = 0,05$

Conclusions:

1. In our opinion, SRS Chamilo is a platform which completely conforms to requirements imposed to the modern information and communication software and can be used in physical training of students. The algorithm of its introduction to the specified sphere, in our opinion, is logical and complete.

2. We note that it is necessary to conduct further researches for the definition of motivational aspects on the use by students of means of the "electronic training" in the course of their physical training. Considering the statistical data, the main attention should be paid to further development of modules.

3. Having analyzed the relation of students to classes on physical training and sport, we received to a conclusion that there is an actual a question of the formation of motivation to regular trainings. Also we confirm to opinion of other researchers, "electronic" communication can't replace "alive" communication, and can be only its addition.

Prospects of further researches. It is planned to investigate motives of students on the use of means of the "electronic training" in the course of their physical training.

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Received: 10.05.2015.

Published: 30.06.2015.

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