# Digital tools in the formation of physical culture values in the higher education system

*M.I.* Bolotova[1*], *M.A.* Ermakova[2], and *S.S.* Korovin[3]

[1] Orenburg state medical University, Orenburg, Russia
[2] Orenburg state medical University, Orenburg, Russia
[3] Orenburg state pedagogical University, Orenburg, Russia

**Abstract.** The article discusses and describes theoretical research and practical results of using digital technologies in formation of values of physical culture in the medical university. The experiment involved 1569 young men and women of full-time education form of the Orenburg State Medical University. To collect statistics in the context of a pandemic were used the online questionnaire and interview method. The respondents developed basic digital skills in use of various digital tools that allow them to monitor the physiological indicators. There was observed an increase in the level of motor activity in groups of students during online classes using educational platforms. There was discovered a positive dynamics in the orientation of the student's personality to health as a value. Thus the systematic implementation of digital technologies in the teaching of disciplines (modules) in physical culture and sports contributed personification of the learning process, visualization of environments for the training process, enlargement of forms of physical and recreation activities, introduction of platform solutions as a space for pedagogical innovations.

## 1 A problem statement

Currently the professional development of the future doctor's personality is reduced to the acquisition of professional knowledge, practical skills without the formation of universal personality characteristics, its socio-cultural potential, which affect the prospects for professional growth and qualitative social changes in real life. Thus the main task in the professional development of the personality of a future specialist in the field of medicine is ability and readiness for continuous professional growth in order to meet modern requirements in the field of medicine: competence in the chosen professional field, including physical training, which can be carried out through digital training tools in accordance with modern trends. Thus, one of the ways to resolve this contradiction can be the promotion of the values of physical culture in the digital educational environment of a medical university [1].

* Corresponding author: prof-ped.gpa@mail.ru

### 1.1 The objective of the work

Today the new concept of "digital pedagogics" is being fixed in pedagogical science, including the system of terms "digital didactics" [2, 3, 4], "digital learning" [5], "digital technologies", "digital educational environment" [1], "digital literacy" [6], etc. Thus V.I. Blinov, M.V. Dulinov and others have developed and are being implemented in practice the didactic concept of digital professional education and training [2] , models of multi-level training of teachers for professional activity in the context of digital learning [7, 8, 9]. Thus digital training entails a change in the professional activity of teaching staff and the formation of new professional skills that provide the ability of the teachers' potential to work effectively with mediacontent.

The analysis of the scientific literature revealed [1, 2, 10] that the necessary basic minimum of pedagogical technologies for building a digital educational environment in a university includes the following components:

– technology of distant (online) learning, which is provided via the Internet on the basis of interactive communication between teachers and students through various mobile applications and digital resources, including the use of adaptive learning systems;

– technology of "mixed learning", combining distant learning with "face-to-face" learning form, which allows to overcome the limitations of online form of learning process. The technology is based on the principles of personification, full assimilation, environment of high achievements and personal responsibility;

- technology of organizing students' project activities (for example, telecommunications projects, network communication formats).

A team of scientists led by A.V. Bogoslovsky conducts research on the problems of human development of information and technological maturity, which contributes to the success of his life in the conditions of digital economy [6]. The levels of digital education for students identified by them (digital literacy, functional digital literacy, digital competence) allowed to determine the educational requirements for the personality of a student – a future doctor. According to this, the implementation of digital technologies in higher education required a certain level of digital literacy among students, which is formed in stages:

1. The problem-practical stage: recognition and understanding of informational situation, the adequacy of formulation of a problem, the effectiveness of problem solving.

2. The stage of semantic orientation: adequate understanding of a problem in a more general informational context.

3. The stage of value orientation: the ability of the individual to adequately assess the information situation, its meaning, goals, objectives and norms from the point of personal and generally significant values.

Another aspect of the research is understanding of the concept of "values of physical culture". Currently this concept is widely studied in science and is considered as a set of objective (material, historical, social relations, information values) and subjective (physical, spiritual, moral, mental) values. At the same time scientists, noting the value potential of physical culture and sports of modern society, distinguish two levels of values: social and personal.

This study's emphasis is on the relevance of the values of physical culture on the personal level, since in modern society, despite the increasing weight of digital technologies, there is a tendency to a lack of attention to physical culture in higher education system and its low rating in the system of personal values of students.

The analysis of scientific works [11, 12, 13] showed that on a personal level are the following values of physical culture:

-intellectual (knowledge of methods and means of developing individual health potential);

-motor skills (the level of motor activity achieved during physical training);

-technological (methodological guidelines and practical recommendations, training methods, forms of organization of physical activity, its resource support);

-intentional (the prestige of physical culture and sports in society, its focus on the formation of the motivational sphere of the individual on physical culture).

Specialists convince that the inclusion of distant learning in the educational process contributes to the promotion of the digitalization process in higher education [14]. The creation of a digital educational environment, as a task of managerial activity, requires scientific justification on the basis of a new branch of pedagogical science – digital didactics.

This gave us a reason to build our own theoretical and practical research in such a way that based on the theoretical material, we can present new practical data that can complement the pedagogical base.

## 2 Results of the research

In the modern Russian psychological and pedagogical literature, the problem of developing diagnostic methods for measuring the levels of formation of value orientations is intensively studied [15, 10]. We take as a basis the ideas of the Russian axiological scientific school of A.V. Kiryakova [15] about the stages of the process under study and identify the following interrelated stages (formation of the knowledge system, worldview attitudes and needs, readiness to maintain the proper level of physical fitness) of the formation of physical culture values. This understanding of the process of forming the values of physical culture formed the basis for experimental work and diagnostic procedures.

The study was conducted on the basis of the Orenburg State Medical University of the Ministry of Health of the Russian Federation with first - and second-year full-time students during the spring semester in the context of the coronovirus pandemic [16]. All students studied in accordance with the working programs of disciplines (modules) in physical culture and sports ("Physical Culture and Sports", elective disciplines in physical culture and sports) in a remote format using digital technologies.

During the experiment, complex tasks were solved, often not solved with the help of pre-digital pedagogical technologies:

- personification of the learning process, based primarily on the construction of individual educational trajectories and continuous monitoring of physical activity, performance and readiness to maintain a level of physical fitness that ensures full-fledged professional and social activities;

- directed use of the digitized pedagogical experience, contributing to the expansion of the possibilities of organizing the educational process in the disciplines (modules) of physical culture and sports;

- visualization of environments for the educational and training process, ensuring the availability of disciplines (modules) in physical culture and sports for all the students, including people with disabilities;

- increasing the attractiveness of physical culture and sports, expanding the forms of physical and recreation activities (training with popular athletes, movie and television stars);

- instant diagnostics and monitoring based on feedback, allowing to adjust physical activity directly within the framework of the training task;

- platform solutions that change the functions of the teacher, freeing him from routine operations; allowing in a short time to make changes to educational programs, taking into account the specified parameters, to adapt for different categories of students;

- conducting online sports and fitness events with a larger number of participants, allowing to get instant results and track the trajectory of each participant;
- adaptation of methods to the personal needs and capabilities of students, allowing to automate, optimize and improve the effectiveness of the implementation of disciplines (modules) in physical culture and sports.

The promotion of the values of physical culture in the educational environment of the university was carried out on the basis of the functioning of a kind of "ecosystem" of physical culture and sports as a modern media and network resource [17, 18, 19, 20]:

- social networks (VK, Instagram, Telegram, etc.) were actively used;
- direct lines of communication were held with the best athletes of the university, winners of All-Russian competitions, masters of sports, doctors, nutritionists, fitness instructors, teachers of the Department of Physical Culture;
- The "Smart Activity School" was organized, the main tools of the work were the mobile fitness applications Strava, Sworkit Lite, Nike Training Club, "Yoga Club", the digital trainer Freeletics, the educational platforms "Open University", Stepik, ZOOM, etc.;
- Internet communication with the teachers of the department and the head of the department;
- videoblogs of training sessions of sports sections of the university;
- competitions, motivational and social events in the format of "challenge" ("I live by sports!", "Keep the bar", "Get ready for exercise!", "Skipping rope", online relay races, etc.);
- videoconferences, round tables, forums promoting a healthy and active lifestyle ("Fashion for health", "Sport-achievements", "Russian-German youth exchanges in the field of mass sports", "Current issues of digitalization of student sports", etc.)

To collect statistical information, there were used the methods of questionnaires and in-depth online interviews. 1569 students of the first (831) and second (738) courses of full-time education form, including the common, preparatory and special health groups, as well as students temporarily released from practical training, were interviewed.

In the diagnostic activity, the modified method of N.A. Lonshakova, G.N. Dinits [21] was used to study the axiological views of medical students on the values of physical culture and their needs for an active and healthy lifestyle. With the help of a selection of online interviews (130 students) on the ZOOM platform, data were obtained on the formation of the respondents' knowledge in the field of physical culture, physical activity needs, experience in physical culture and sports activities. The characterization of students' orientations on the values of physical culture was based on an online questionnaire, in which the emphasis was placed on identifying the role of digital technologies at all stages of value formation. The questionnaire includes three sets of questions:

The 1st block is focused on identifying the level of students' knowledge about health and its components, ways and means of preserving and strengthening individual health; about new digital technologies, fitness applications and health-saving programs;

The 2nd block is focused on identifying the degree of physical activity, including using health gadgets and specialized software applications;

The 3rd block is intended for obtaining information about the formation of digital skills for the formation of individual health potential.

The analysis and processing of the received information was carried out using the program SPSS Statistics.

Students, girls and boys both, demonstrated a fairly high level of knowledge about new digital technologies, applications and programs in the field of physical culture and sports; increased physical activity in the course of training sessions at the university using digital tools; expanded forms of physical culture and recreation activities, respondents more often began to participate in sports and physical culture and recreation activities in virtual

environments; formed motivation for physical culture and recreation activities. Also developed an individual approach to the health, nutrition and daily routine based on daily diagnostics and monitoring using digital tools (Table 1).

**Table 1.** Dynamics of the level of formation of physical culture values among students (in% of the number of participants).

| **Parameter** | **Stages of research** | | **Note** |
|---|---|---|---|
| | **March 2020** | **June 2020** | |
| **Sources of knowledge formation about digital technologies in the field of sports and sports** | | | |
| Mass media | 42% | 30% | |
| Internet | 10% | 6% | Close connection between training classes and the Internet |
| Training classes | 19% | 57% | |
| Other sources | 29% | 7% | Family, friends |
| **Digital literacy** | | | |
| Low level | 56% | 8% | |
| Medium level | 35% | 23% | |
| High level | 9% | 69% | |
| **Physical activity using digital resources** | | | |
| Low level | 6% | 6% | Physical activity of the students is higher during period of study than examination period |
| Medium level | 72% | 15% | |
| High level | 22% | 79% | |
| **Forms of physical activity and sports during distant educational process** | | | |
| Training classes | 92% | 24% | |
| Students' independent physical activity and sports | 26% | 57% | |
| Physical exercises in daily routine | 14% | 62% | |
| Mass wellness, fitness and sports events | 32% | 53% | |
| **Students' motivation to fitness and wellness** | | | |
| Forming an esthetic body type | 67% | 42% | Motivation for physical training varies between boys and girls and this fact was considered while creating an educational program for the distant form of education |
| Strengthening of health | 21% | 59% | |
| Emotional satisfaction (stress relief, communication with friends, change of scenery) | 6% | 75% | |
| Self-improvement | 9% | 14% | |
| Professionally orientedG motivation | 7% | 67% | |

The research does not lose its relevance and continues in the context of the transition of educational organizations to e-learning and the use of distance learning technologies and the introduction of online courses.

## 3 Conclusions

Thus digital pedagogics in the implementation of the discipline "Physical Culture and sports" contributes to the implementation of a differentiated approach to training and

education. The main means of digital didactics digital pedagogical technologies in the field of teaching disciplines (modules) in physical culture and sports are able to ensure the achievement of the set educational goal – the formation of the values of physical culture, which are an important component of the professional development of a medical worker.

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