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Online training courses: application experience in sport specialist training disciplines

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Background. Modern world is being actively reequipped with new technologies that invade every social sector including science, education, health services and, the last but not least, sports; with the modern information processing and digital technologies widely viewed as pivotal for the technological progress. It should be mentioned in this context that electronic education resources are ranked among the priority progress vectors for the national academic education system with its specialist training and advanced education curricula. Modern information technologies offer great opportunities for the physical education and sports specialist training systems due to the new-generation progress facilitating didactic materials. Such materials may include multimedia service programs, multimedia multipurpose educational systems, multimedia presentations, educational databases, educational internet resources, special skills training simulators, digital video lessons and movies, and special customizable online training courses [1].

At this juncture the national education system have gained some experience in the distance learning design and test projects in different academic disciplines (economics, law etc.) including physical education and sports specialist training systems, albeit the experience is still rather limited in fact. It is particularly true for the sport specialist training disciplines (gymnastics, team sports, skiing, track and field sports etc.) where the education technologies need to be highly sport-specific to offer detailed analyses supported by the execution technique videos, security and assistance issues, tactical performance analyses etc. The things are further complicated by the need to have systematized and standardized the widely expanding electronic education resources. Thus the Russian Ministry of Education Order 'On the electronic and distant education technologies application procedure to complement the valid education curricula offered by the national education establishments' underlines the need in the discipline-specific online training courses designed in compliance with the valid education standards, training curricula and work programs in every relevant discipline/ course/ module/ other component [3].

Objective of the study was to provide theoretical grounds for and test benefits of a new online training course in application to the physical education and sport bachelor training with gymnastics taken for the case study.

Study findings and discussion. The distance learning system development and implementation projects by different national universities apply different platforms including WebTutor, ShareKnowledge, Moodle, Prometheus etc. It is only natural that the system designers select the most efficient software tools for the online training courses as required by the relevant standards, goals and missions; with a special attention to many other factors including the software toolkits (functionality); stability; user-friendliness; convenience for administration and upgrades of contents; costs; modular design elements; scalability; and, of course, 100% multimedia serviceability. Commonly acknowledged as most beneficial at this juncture is the free Moodle distance learning platform highly competitive with the commercial systems. Udmurt State University has actively applied a prior version of the platform; and on September 1, 2016 made a transition to the modern advanced Moodle-3x version to design and implement a range of online training courses in different disciplines. The new version offers a mobile application; improved user-friendly interface; automatic upgrades of the user profiles by the Integrated Information and Analytical System (IIAS) database maintained by the Udmurt State University specialists; education data conversion from the old to the new version (by the faculty only); and automatic registration of students for the course using the relevant IIAS tool.

We would leave aside the course development history to dwell on the practical benefits of the advanced Moodle-3x version when it comes to meeting the key requirements to the education content presentation in the standard integrated education method (IEM). For instance, the Federal State Education Standard for 49.03.01 Physical Education discipline sets forth frame and specific requirements to the disciplinary and sub-disciplinary education curricula and work programs categorized by the outcome competences, lectures, practical and lab sessions, themes for the tests and examinations, test resources etc. In compliance with these requirements, we designed the distance online training course that includes: training programs, practical recommendations for the didactic process and self-reliant studies; requirements to the progress tests and final examinations; key electronic education resources (ER) and tools including the electronic textbook and video-courses of the school gymnastics; case study videos etc.; additional electronic information resources including the Federal State Education Standard for the primary/secondary/ general education service; glossary of gymnastic terms; samples of the service planning documents (synopses, technological schemes); issues and tasks for each study theme; integrated physical education and sports education program for the general education schools; computerized progress test and final examination system; and lists of the relevant education tools and their application procedures.

Basics of the course are presented in the introductory/ background information module (see Figure 1) that includes a glossary of gymnastic terms; references to the author's electronic education school with an overview of the services; background data on the author's textbook 'School Gymnastics: Training Method' with its electronic version; course curricula compliant with the valid federal standards; practical service recommendations for the course; and materials for the final tests.

Figure 1. Background information module

Presently the online training course offers the following training modules: Gymnastics in Modern Physical Education System; Gymnastic Terminology; Injury Prevention Systems; School Gymnastics Lesson; School Education Planning and Accounting Basics; Gymnastic Routines and Gymnastic Lesson Management Basics; Lesson Design and Analysis; and Mass School Gymnastic Competition Design and Management Basics; with the P.K. Petrov's 'School Gymnastics: Training Method' textbook used as a basis for the course content [2].

Every training session under the course, including the gymnastics trainings, are assisted by the training videos. Thus the school gymnastics lesson gives references to the relevant practical execution videos to help analyze the available training tools and methods, training process design and management, typical errors etc.; with each topic supported by references to the more detailed videos. Such video-assisted trainings are particularly helpful in preparations for the progress tests and final examinations.

Relatively long video materials for trainings are available on the departmental blog on YouTube, with every reference having its URL-address. Video-fragments for progress tests may be downloaded in the mp4 or Webm formats to the free Moodle system for replays: see Figure 2.

Figure 2. Test exercise video

Benefits of the new online training course were rated by the course testing experiment. Sampled for the experiment were the 2nd-year students (n=30) from the Physical Education and Sports Institute of the Udmurt State University split up into Experimental (EG) and Reference (RG) Groups in the Moodle system. The pre-experimental tests of the sample offered 20 tasks with optional/ relevance responses, with the right optional response scored by 0.50 points and the relevance responses scores depending on the numbers of the right checks. The RG was trained in the experiment as required by the valid standard curriculum with the relevant traditional didactic materials (synopses, textbooks etc.); and the EG was trained as required by the new distance e-learning model; with the both groups tested again after the experiment. The pre- versus post-experimental test data were processed by the standard mathematical statistics toolkit using the Wilcoxon U-criterion of randomness.

Differences of the pre-experimental EG versus RG test data arrays were found insignificant, with $U_{emp}=80.5$, $p>0.05$, and $U_{cr}=64$. The post-experimental tests showed significant progress of the EG versus RG, with $U_{emp}=0$, $p<0.05$, and $U_{cr}=64$.

Conclusion. Modern Moodle-3x software toolkit with its multimedia services was found highly serviceable for the new distance online training course – since the educational service is supported by video illustrations and analyses to facilitate the educational process and secure its accessibility and quality for every student; including the academic athletes combining studies with trainings and competitions; with every athlete and student offered an individual customizable educational process management trajectory.

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Abstract

Objective of the study was to provide theoretical grounds for and test benefits of an online training course in application to the physical education and sport bachelor training disciplines, with gymnastics taken for the case study. The methods applied for the study purposes were as follows: analyses of the available theoretical and practical literature on the subject; analyses and summaries of the online training course practical testing experiments and best experiences in the physical education and sports specialist training disciplines; and the standard mathematical statistics toolkit for the study data processing. The study resulted in a new standardized (as required by the valid FSES) online training course for the Udmurt State University bachelors of 49.03.01 Physical Education discipline majoring in the following sub-disciplines: Gymnastics in Modern Physical Education System; Gymnastic Terminology; Injury Prevention Systems; School Gymnastics Lesson; School Education Planning and Accounting Basics; Gymnastic Routines and Gymnastic Lesson Management Basics; Lesson Design and Analysis; and Mass School Gymnastic Competition Design and Management Basics. The study rated benefits and potential of the Moodle-3x Online Training Course that offers a range of video education materials for the academic physical education and sports curriculum applicable on a customizable basis. The new course testing experiment proved the course being highly beneficial.



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