

Information Technologies as Means of Creating Schoolchildren's Value-Based Attitude to Physical Training Classes

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Abstract—It is impossible to cultivate the need for physical training classes in the children using commands, this is contrary to the child's natural resistance to enforcement (the child's motivational sphere results in a defective transformation), and therefore, you should be guided only by their sincere interest in the activities.

The formation of the students' positive motivation to physical training classes can be achieved through effective forms and methods of the educational process; application of game like and competitive methods; use of modern didactic tools based on the use of information and multimedia technologies; positive dynamics of the quality of the students' mastering the training programme and improving their physical education; positive dynamics of the level of physical and technical competence; the students' focusing on significant and solid activity results; personal example of the teacher and his/her self-improvement, as well as other innovations in the content of education.

The article presents the results of the educational experiment aimed at proving the hypothesis that the development and use in the educational process of an electronic educational course that provides with methodological, informational and control materials for mastering the "Basketball" section of the physical training curriculum for the 7th grade will help improve middle-aged schoolchildren's interest in the study of the program, and thereupon the development of a value-based attitude to physical education and efficiency of physical training in general.

Keywords—*physical training education; learning motivation; electronic educational course; middle-aged schoolchildren*

I. INTRODUCTION

The problem of increasing the children's interest in learning is one of the longest-standing ones in the organization of the educational process and is considered in the works of many famous teachers and psychologists [1–4]. The motivational sphere of schoolchildren reflects their inner desire and their active, conscious attitude to the classes. Learning activity becomes effective in case it is only driven by strong, profound intentions and motives. Therefore, the quality of the teacher's work, including the one in the field of physical education, depends largely on how he/she understands the nature and structure of children's learning motivation, including the factors influencing it, and applying the methods for its formation.

Unfortunately, it has to be noted that from year to year the students' interest in physical training classes and sports goes down: if virtually all first-grade students hurry to a class with delight, then many of the senior students try to avoid them by obtaining medical release certificates, or simply skip classes. This is undoubtedly due to the low level of material and technical base of schools and the sameness of classes which do not allow revealing the full potential and attractiveness of this type of educational activity, as well as the recent emergence of other hobbies among the students (computer games, video films, Internet communication, etc.). Due to the lack of knowledge, schoolchildren often do not realize the importance and degree of influence of physical activity on their health and are not motivated to strengthen it.

The lack of an optimal motivational complex, the failure to form stable habits, the lack of an optimal life stereotype that develops during the preschool and school periods are significant reasons for the low physical activity of modern children.

If at an early age children grow up attracted by an innate need for constant movement, then in an adult it manifests itself only on the basis of conscious determination [5–8]. Therefore, the creation of conscious sustainable motives among schoolchildren is an important task of learning activities, and the pedagogical principle of consciousness and activity during the period of active development of the intellect acquires fundamental importance.

There is no doubt that the motivation of students is age-related and, over time, the factors affecting it change. The motivation of middle-aged schoolchildren depends on the personality of a physical training teacher, his/her teaching skills, education environment conditions, features of educational work in the classroom and family, personal needs and interests of the child, and the level of his somatic growth and adequate physical development.

The following motives prevail in the physical activity of middle-aged schoolchildren:

- gaming and competitive motives intended to meet the child's need for play, movement and competition;
- cognitive motives aimed at the content of the subject and the learning process (acquiring knowledge and work methods,

the need for intellectual activity, the solution of difficult problems, etc.);

- social motives (duty, responsibility, self-determination, self-improvement);

- narrowly personal motives (well-being, avoidance of trouble, prestige; temporary motives play a great role here, such as getting a positive mark for a class).

In order to change temporal motives of the students to more stable ones related to the personal need for physical activity by applying corrective elements in the teaching methods, appropriate didactic tools are needed which contribute, among the other tasks, to the formation of a conscious and value-based attitude to the physical education in students which is mainly important not only for the effectiveness of these classes but also for the development of motivation for self-exercising activity. And the use of modern information technologies in this regards due to their relevance in all spheres of human activity and special popularity among young people can significantly enhance the cognitive activity of schoolchildren in the field of physical training and sports.

Interactive presentations of different types, quizzes, tests, crossword puzzles, extensive theoretical material help to make the educational process intensive, effective and high quality. Information and communication technologies provide the students with wide access to methodological and scientific literature on the subject, create an opportunity to diversify homework, stimulate self-study which generally contributes to the learning activity and the creative development of children [9–13].

There are quite a lot of works devoted to the description of all spheres and possibilities of using information technologies in physical education [14–17]. However, their actual use is private in nature and is not widely used in schools. This gave us the basis for performing a practice-oriented study that includes the development and application in the educational process with middle-aged schoolchildren of an electronic educational course providing one of the sections of the curriculum with methodological, informational, control, video and other materials with the aim to master it more effectively.

II. METHODS

To solve the problems, the following methods were used in the study:

- theoretical analysis and generalization of literary sources which allowed determining the optimal structure and content of the electronic educational course for middle-aged schoolchildren and correcting the educational influence regarding the formation of their motivational and valuable component of physical training competence;

- educational experiment with the use in the educational process of the electronic educational course which expands the possibilities for the 7th-grade students to study the “Basketball” section of the physical training curriculum;

- class observation to assess the activity of schoolchildren in physical training classes;

- testing the technical preparation of the 7th-grade students;

- methods of mathematical statistics (in processing the experiment results).

III. RESULTS

Basketball enjoys great popularity among the modern youth and gains a rightful place among the means of physical education in school. The use of basketball as well as exercises involving the technical elements of this game in physical training classes allow the students to expand mix of their physical skills and diversify basic physical qualities.

Electronic educational course (EEC) (section Basketball of the Physical Education discipline) developed and placed on the school’s website is intended to contribute to the most effective development of the theoretical, methodological and practical fundamentals of the Physical Education basketball training material, the purpose of which is comprehensive harmonious development of students, maintaining the necessary level of their physical activity during the school period, the preservation and strengthening of health, the formation of physical capability, knowledge and skills of using a variety of means of physical training and sports.

At the stage of the educational experiment, two groups of schoolchildren were selected – experimental and control groups. The experimental group consisted of the 7B grade students (27 people) who during the study used the EEC on basketball in school classes and in self-training, and students of another class – 7A (25 people) were included into the control group and followed the traditionally used technology classes.

For a comparative analysis of the experiment results, before the start of the experiment, we checked the homogeneity of groups according to the initial indicators characterizing the level of technical readiness of schoolchildren in basketball. Control exercises in both groups were performed equally poorly and no significant differences were found ($p < 0,05$).

Testing of the initial level of basketball technical elements acquired by the 7th-grade students was performed based on control exercises and standards in them. The following exercises were chosen as control exercises for the students of the 7th-grade: “snake” speed dribbling (minimum exercise time to be estimated), free throw (shot technique and effectiveness of 10 attempts to be estimated), throw the ball after technically correct dribbling from the middle line of the basketball court (on the right side with the right hand, on the left side with the left hand).

The results of the initial control and educational tests in both groups showed that the majority of the 7th-grade students practically do not know basketball technical elements - 55% of the teenagers got an average mark below 3.

Fig. 1 clearly shows the percentage of results of control exercises with basketball technical elements performed by the 7th-grade students on a scale from one to five.

TABLE I. RESULTS OF BASKETBALL TECHNICAL COMPETENCE STANDARDS FULFILLED BY THE 7TH-GRADE STUDENTS (ON A SCALE FROM ONE TO FIVE)

Grades	The average mark for the fulfilment of standards by the 7 th -grade students					
	free throw		throw the ball after dribbling		speed dribbling	
	boys	girls	boys	girls	boys	girls
7 A	2.86	2.77	3.1	2.82	2.78	2.66
7 B	3.07	2.74	2.94	2.9	2.61	2.57
Total	2.86		2.94		2.66	

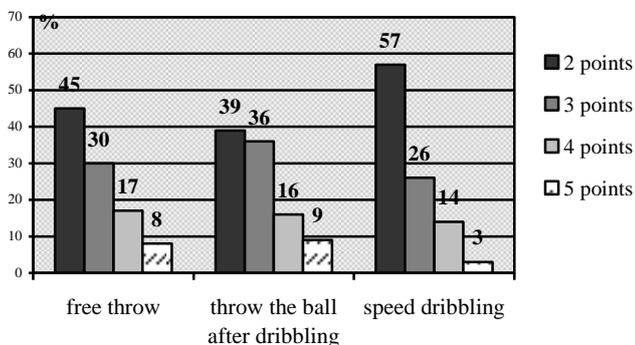


Fig.1. The results of control exercises with basketball technical elements performed by the 7th-grade students on a scale from one to five, %

The analysis of the results showed the need to improve the quality of the schoolchildren’s training in individual sports, changes in the organizational and substantive foundations of the applied teaching technologies based, among the other things, on the educational environment informatization.

The EEC used in the experiment provides for a breakdown of all theoretical material into topics: the history of basketball development, basketball characteristics as a sport, competition rules, classification and description of the technical elements of the game, basics of tactical interactions of basketball players (within the curriculum for the 7th-grade). It also describes the basic methods and means of educating the physical abilities of basketball players; includes exercises for learning and improving basic techniques used in basketball; lists information resources for each topic, defines control requirements and means of feedback with the teacher.

The theoretical material for each topic is presented in the form of a PDF-file which presents program material sequentially, with the help of diagrams, tables, figures, descriptive texts. Presentations of educational material are also made in the form of slides (in PowerPoint program).

A compulsory element of each topic is a glossary the aim of which is to interpret the highly specialized terms found in the EEC. In addition, the glossary contains links to open electronic resources that can provide additional explanations for each term as well as files with pictures and photos relating to the object in question.

The EEC also includes video materials, for example, video classes: “5 effective techniques in basketball” and “15 exercises to improve ball dribbling in basketball” each of which can be used at an appropriate stage of training.

Each EEC topic contains various control and measuring devices – questions for self-control, practical tasks, and tests on the topics performed as MOODLE objects and involving automated questionnaires with several answers.

Practical tasks are made to stimulate independent preparation for the lesson and provide students with finding the necessary material in the additional literature or on the Internet. For example: “Prepare individually for conducting an action-oriented game or a relay with basketball technical elements - dribbling, passing, and throwing the ball into the basket.” Or “Prepare to play the role of one of the judges in the classroom while trying to use judicial gestures” (for this purpose the students will have to carefully study the gestures of the judges), etc.

There is also a final control unit in the EEC which includes testing on the whole “Basketball” section, as well as a list of exercises for assessing the level of students' mastery of the basketball technical elements (those that were mastered at this stage).

In addition to it, each topic contains methodological recommendations intended to facilitate the proper mastering of the presented program material and the most rational arrangement of the educational process at school and the organization of students' individual work at home.

IV. DISCUSSION

Upon the completion of the experimental period, the 7th-grade students were re-tested to check the basketball technical elements in order to make a comparative analysis of the results of improving the technical skills of this sports game in the control and experimental groups.

Comparative evaluation of the results of testing technical readiness of the students showed the following:

- in the “free throw” control exercise, 7 boys and 6 girls of the experimental group (out of 27 students) were able to improve their mark by at least 1 point, and the average mark in this exercise in the 7B grade increased by 17.5%. For comparison, in the control group, 6 boys and 2 girls (out of 25 students) improved their mark, and the average grade in the 7A grade increased by 10.4%;

- in the “throw the ball after dribbling” exercise, 12 boys and 8 girls of the experimental group were able to improve their marks by at least 1 point, and the average mark for this exercise in the class increased by 26.1%. For comparison, in the control group, 7 boys and 6 girls improved their mark, and the average mark for the class increased by 16.6%;

- in the “speed dribbling” exercise, 12 boys and 11 girls of the experimental group were able to improve their results, and the average mark in this exercise in the class increased by 32.8%. For comparison, in the control group, 5 boys and 5 girls improved their mark, and the average mark for the class increased by 10.6%.

Fig. 2 clearly demonstrates the percentage of schoolchildren in the experimental and control groups who improved (at least by 1 point) their results in control exercises

with the basketball technical elements after the completion of the experiment.

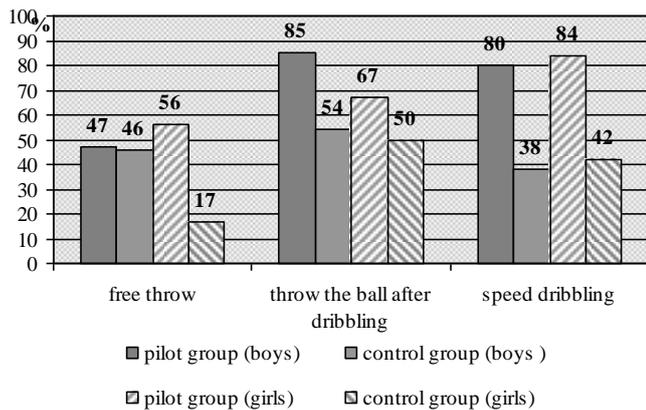


Fig.2. The percentage of schoolchildren in the experimental and control groups who improved (at least by 1 point) their results in control exercises with the basketball technical elements after the completion of the experiment.

The results of the participation of both groups (control and experimental) in competitions among the seventh-grade schoolchildren conducted according to generally accepted basketball rules also indicate a more effective improvement of the technical skills of this game by students of the experimental group.

Besides, it should be noted that the students of the experimental group, unlike other seventh-grade schoolchildren, thanks to the use of EEC studied the theoretical material of the “Basketball” section in more detail which is convincingly shown by the results of testing theoretical preparation that was made possible by the EEC. 92.8% of those tested schoolchildren showed positive results (provided that at least 75% of answers were correct).

V. CONCLUSION

An education-purpose electronic edition containing systematized texts, graphic, photo and video materials is able to provide students with creative and active acquiring of new knowledge and skills, including in the field of physical training. This is done through the implementation of systemic and structural and functional relatedness of the presentation of educational material, computerized visualization of educational information, interactivity of activities, operational control and self-control of knowledge and skills when performing exercises and tests.

A comparative analysis of the results of exercises with the basketball technical elements performed by the students of the experimental and control groups allows us to suggest that the use of electronic educational courses in the educational process that improve the educational and methodological support of the learning process based on the use of information technologies has ensured the formation of the students’ interests directed to the cognitive and practical activities during mastering the program material, and on this basis a conscious, active, emotionally positive and valuable attitude to

physical training classes, which in total contributed to improving the efficiency of the educational process as a whole.

The schoolchildren of the experimental group managed to fulfil the standards of technical readiness on the average by 13% better and performed the best result in basketball competitions.

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