



Research Article

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Application of modern education information technology in the basketball tactics teaching

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ABSTRACT

Education informationization is aimed at the development and improvement of the information quality and the creative thinking ability of qualified personnel. Using the information as an essential element in education system, and widely using the information technology in the various fields of education, which can promote the education modernization process. The results of our research show that the education information technology system that designed for the basketball tactics teaching accord with the rules and characteristics of basketball. This system has the advantages of simple, straightforward, effective, safe, convenient, and cheap. And it can improve the students to master the ability of basketball skills, boost them to have a better performance in actual combat.

Key words: Informationization, Basketball, Tactics Teaching, Evaluation

INTRODUCTION

As the coming of the era of knowledge economy and the speedy development of the information society, informationization has become an overarching trend of the world economy and social development. Widely application of information technology (abbreviated as IT) is the trends of the international education circle since the 1990s, the domestic scholars called it education informationization phenomenon.[1] As the International 21st Century Education Committee report to the united nations educational scientific and cultural organization (UNESCO) stated:” There is no doubt that the ability in obtaining personal information and processing information is a decisive factor for a person entering into the social and cultural environment t [2].

By using computer, multimedia and network communication as the foundation of the modern technology in the teaching process, this is information education. Conversely, in order to adapt to new requirements of the informational society that were pointed at education development, and to promote the comprehensive reform of education, many sensible people thought that the computer and network technology are the technologies with most revolutionary effect on education. In particular, the network technology is expanding rapidly since 1998, the relationship between whole social development and information technology has grown closer and closer, people pay more and more attention to the influence of the IT on the social development, therefore the proposal “society informationization” and “education informationization” has begun to happen. The education informationization has begun to gradually apply to teaching practice, and will affect much on China's education reform and development [3].

Education informationization use the information as an essential element in education system, and widely use the IT in the various fields of education, to promote the education modernization process. Meanwhile, it is the important part of quality-oriented education, and the new teaching contents and teaching forms reflected in the process of quality-oriented education. Using informationization to promote the education modernization, and to hardly realize the leapfrog development of our education. Therefore, in-depth study own characteristics and future trends of the informationization of physical education has its profound realistic significance.

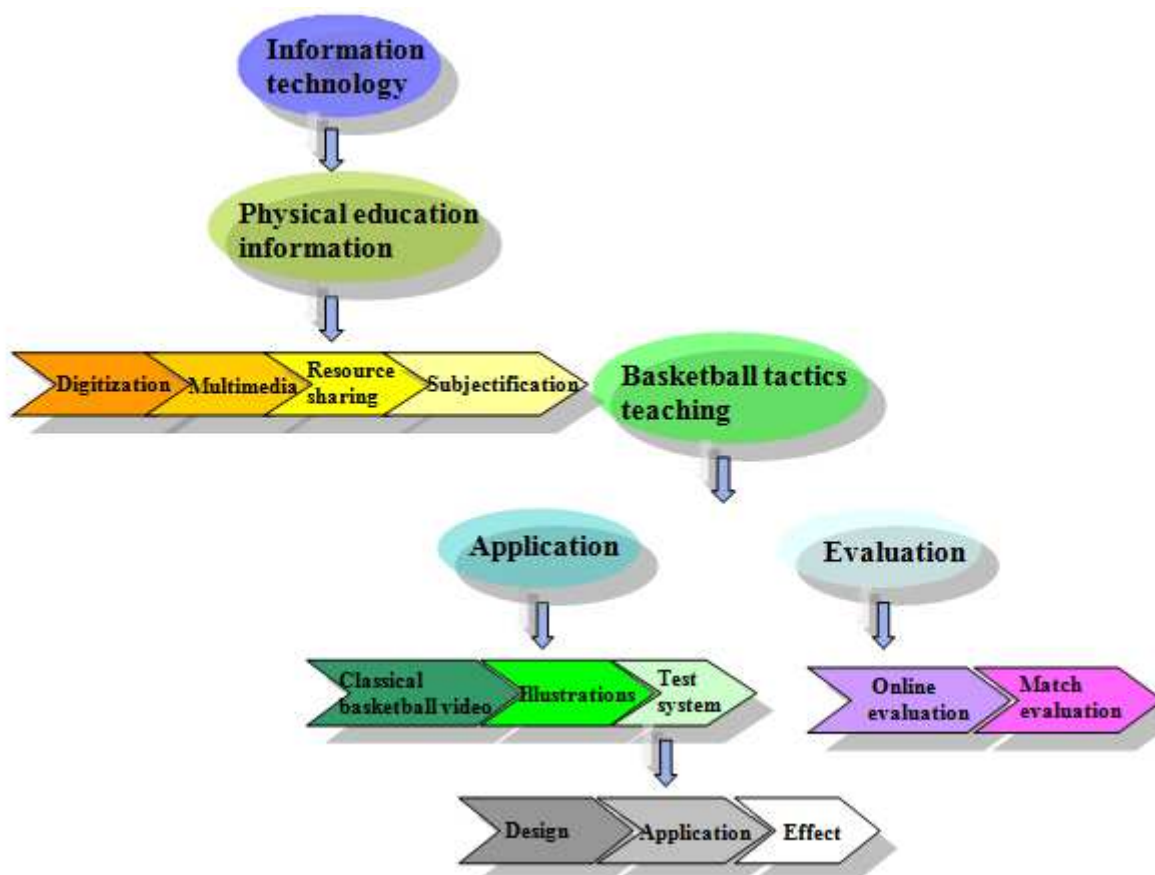


Figure 1. The information technology of basketball tactics teaching

2. INFORMATION TECHNOLOGY OF BASKETBALL TACTICS TEACHING

At present, the world basketball constantly develop to high speed, high altitude superiority, high skill, and heated confrontation, at the same time, its tactics application fully reflects the characteristics of artistry, intelligent, and refinement, make the modern basketball sport to develop to high speed, accuracy, power, agile, changeable and newer[4-5]. The tactics thinking ability of basketball player means that on the basis of the regular rules of applying time and terms in the aspects of techniques and tactics in the match, after the observation, analysis, and judgment to complicated situation of basketball court, the thinking abilities on how to act accordingly, it is the prerequisite for players to use correct and reasonable techniques and tactics in the match, it effects the strain capacity of player. We should take the tactics thinking ability of basketball player as a basic training of basketball to develop, which can further improve our country's basketball level [6-8].

The characteristics of physical education information are as follows [9-12]:

(1) Digitization of physical education information

Computer is the basis of digitization, which has been applied in the physical education widely, it can make the educational resources of sports highly integration, stable performance, unitize technique criterion, big storage capacity, and fast speed. Most of sports teaching medias are image information, they need larger storage capacity. Digitization offer more room for the storage and usage of physical education information, and more convenient conditions for the wide usage of physical education digitization.

(2) Multimedia of physical education information

Multimedia can integrate single sport information media together, to make the sport education information media equipment have high degree of integration, nice commonality,; Using multimedia technology can make the education information diversity, structured, dynamic, and visualization, let the complex technology Visualization, and the tasteless technology teaching process contextualization.

(3) Resource sharing of physical education information

Three-dimensional transmission of physical education information can make the resource sharing of physical education information, this sharing include the sharing of hardware and software resource, as the high-capacity storage medium, online education material, network sport information, and sports news. For the moment, the key of

physical education information is the sharing of software, students can use information media, multimedia teaching discs, and internet to obtain the basic knowledge of sport and relevant information that needed for study, add the direct shortcoming in technology teaching practice, for better finish the study on sport technology.

(4) Subjectification of student learning status in physical education

As the networking of physical education information, multimedia of information, and the extensible change of information, students are fully out of the passive or receptive learning, can form the knowledge positively, realizing the active sports study at different environment and conditions, it fully reflected that the mainstay of the student in study procedure.

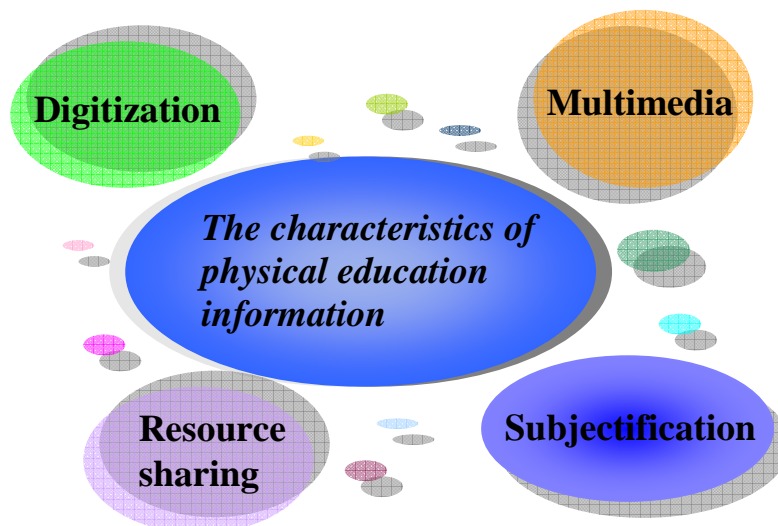


Figure 2. The basic features of the physical education information

3. THE DESIGN METHOD

(1) Classical basketball video for a rudimentary knowledge of basketball tactics

Under the guide of basketball pundits, a lot of videos about international basketball games are chosen. When the video is playing, we commentate on one specified player to introduce his/ her tactics, as figure 3 shown. Then we will focus on some tactical coordination pictures to make students know about the basic knowledge of basketball tactics (figure 4).



Figure 3. Classical basketball video for basketball tactics teaching



Figure 4. Pictures of tactical coordination scene

(2) Illustrations of basketball tactics

Many visual illustrations corresponding to all sorts of stadium situations are presented to make the students understand the basketball tactics in-depth, and the combination methods, combination keys, common mistakes should be noted in the illustrations, as shown in figure 5. Figure 5 is a classical illustration for pass-and-cut combination. We should tell students the pass-and-cut combination refers to the easy combination of players that was composed by pass and cut ball. Then we should tell them what they should do in this condition, that is the red 5 pass the ball to red 4 at first, then the red 5 bypass blue 5 to arrive the basket, at this time, red 4 pass the ball to red 5 to help he/she to score.

The keys in this tactic are the red 5 player should caution the appropriate time to attack the basket, make good use of fake and speed, and the red 4 player should also make good use of fake and speed. At last, the common mistakes are pointed out as the emergentness of red 5 in attacking the basket is not enough, the change of speed, action, and direction in attacking the basket is not obvious, the ball that red 4 pass to red 5 is not on time, not in place, and not covert. It will warn the students not to make the same mistakes. We can also use a more detailed illustration to better express this pass-and-cut combination tactic (figure 6).

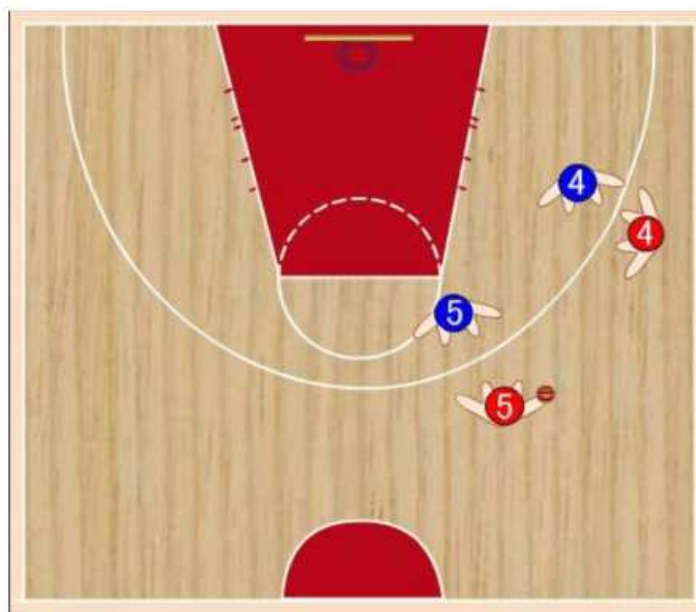


Figure 5. Illustration for pass-and-cut combination

(3) The design of test system

We intercepted some tactical coordination pictures in the basketball video, remove the poor quality pictures at the first treatment. Then we ask many professors who are engaged in the basketball teaching and training to do the independent selection evaluation.

We pick out the same type of pictures which has been identified by the professors to the other ones, to get the final evaluation and determination. Therefore, we can obtain 90 pictures for the test system, among them, 30 pictures for the pass decision, 30 pictures for the holding breakthrough decision, and 30 pictures for the shot decision; this is for the accordance of the test results. We label the person carrying the ball with spot to make the testes find the person quickly. The test picture is shown as figure 7. In figure 7, three buttons are marked as pass ball, shoot, and break through respectively.

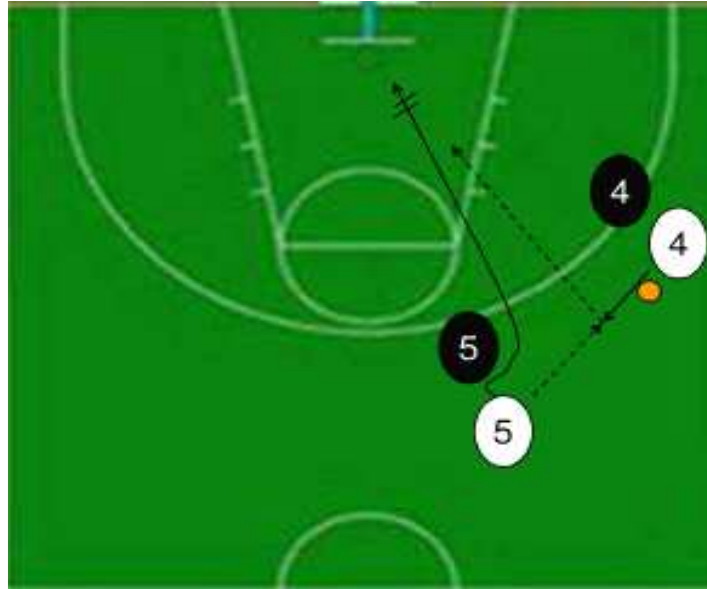


Figure 6. More detailed illustration for pass-and-cut combination



The next step of the person carrying the ball is:

-
-
-

Figure 7. The picture for test

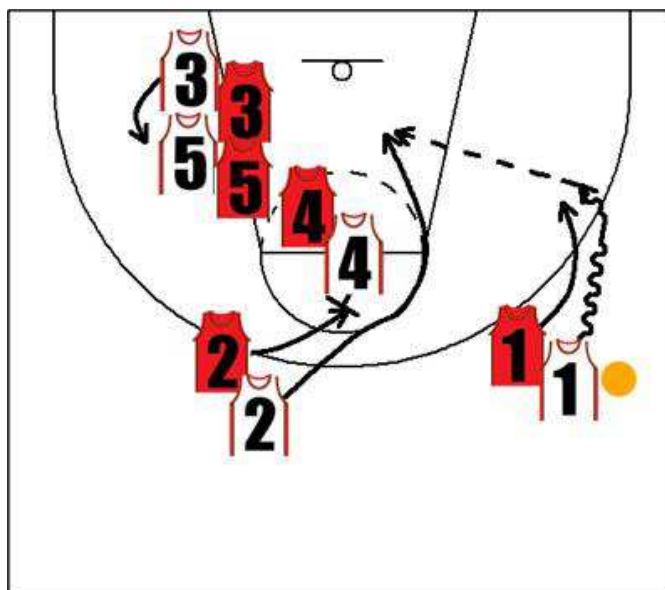


Figure 8. The corresponding illustration for figure 5

The person who take the test choose a suitable option he/she think, after 90 subjects were answered, according his/her scores, we can give a evaluation and offer a corresponding guidance. When the person checks the answers, the corresponding illustration should be given automatically to make the testes master the basketball tactic completely. For example, the illustration for figure 7 is shown as figure 8.

(4) The application of this test system

We choose 50 physical education students as samples to take this test. After the test, we offer a opinion table to them, as shown in table 1. As table 1 shown, their opinions were collected at different aspects. The number in table 1 means the number of person who chooses this option. Then according to the results we will adjust our system to make it better for basketball tactics teaching.

Table 1. The opinions for this system

Items	Number	High	Medium	Low
Difficulty	36	10	4	
Definition	24	25	1	
Speed	20	23	7	
Rationality of questions	37	10	3	
Rationality of answers	42	8	0	

As the results, we can see most of students think the difficulty of test is higher, so we should reduce the difficulty of questions, or according to different kind of students to design different grade of test system (As figure 9 shown). The definition of pictures can be improved by the process of Photoshop. The time for test should be extending to make most of students feel better. The rationality of questions and answers is good enough for testes.

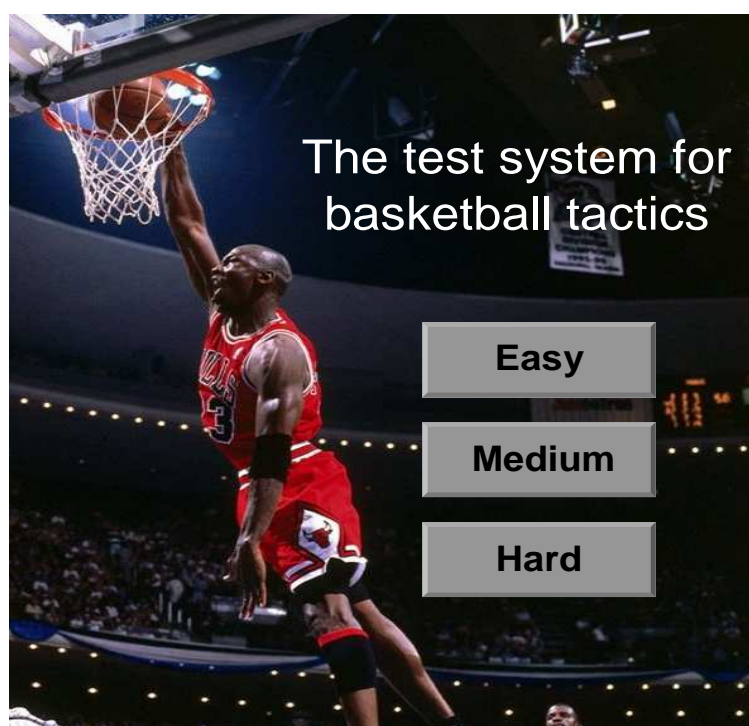


Figure 9. The test system for different degree students

(5) The effect of this test system

After the test, the tester should know what his /her feeble aspect is, and he/she can cooperate with the teacher to continue the practice on that special subject to obtain a satisfying performance. This test system can be used in the self-examining and be used as the quiz.

RESULTS AND DISCUSSION

To evaluate the effect of our education information technology, we choose 30 physical education students who have been trained with the above mentioned education information technology as experimental group, and the other 30 ones who have not been trained with the above mentioned education information technology as control group. These

60 students were evaluated before the training, and via the T-test, we can not find obvious difference. Therefore, their basic conditions are similar, and it is reasonable to make a comparison. The evaluation is divided to two parts, one is by computer, and the other part is by the match. The details of them are as follows. At first, we estimate the experimental group and control group online.

(1) Online evaluation

The evaluation system is similar as the above test system. 60 different questions is offered to test the students fairly. We set the score of each question as 1, the students choose the right answer, and he/she will get 1. But when he/she choose the wrong answer, just 0 values. For the accuracy of the evaluation, we set 10 students as a team, so the experimental group and control group are divided as three teams respectively. We named them as team 1, team 2, and team 3. After the evaluation online, we integrate the scores of students in each team, calculating the average value. The result is shown as table 2.

Table 2. Comparison of the experimental group and control group online

	Experimental group	Control group
Team 1	57	34
Team 2	53	36
Team 3	58	25

From this table, we can see the experimental group is obviously better than the control group, thus the above education information technology has a good effect on the grasp of basketball tactics. It can be used in the basketball tactics teaching.

(2) Match evaluation

The evaluation by match is more complex and time-consuming than the online one. We divided the experimental group and control group as 6 teams respectively. And they were be named as team 1, team 2, team 3, team 4, team 5, and team 6. The player of each team is chosen randomly in 30 persons of each group. Then the team 1 of the experimental group played team 1 of the control group three times. The rule of basketball match here is similar as the international regulation. Games are played in four quarters of 8 minutes. We record the winning team as 1 and the failed team as 0. After six games were finished, we added the total scores of each team to obtain the table 3.

From this table, we can see the scores of experimental group is obviously higher than the control group, thus the education information technology can be testified to have the advantages in promoting the basketball tactics of player.

Table 3. Comparison of the experimental group and control group by games

	Experimental group	Control group
Team 1	2	1
Team 2	3	0
Team 3	2	1
Team 4	1	2
Team 5	2	1
Team 6	2	1

CONCLUSION

Education informationizations use the information as an essential element in education system, and widely use the information technology in the various fields of education, to promote the education modernization process. In the physical education process of high school, as the developing of integration of information technology and the information networking, the degree of informationization in physical education will increase constantly. We can not stand in the traditional education form; the unique advantage formed by physical education informationization has increasingly become a prior unique advantage in physical education of high school, the physical education informationization becoming a unstoppable development trend in high school.

The tactics thinking ability of basketball player means that on the basis of the regular rules of applying time and terms in the aspects of techniques and tactics in the match, after the observation, analysis, and judgment to complicated situation of basketball court, the thinking abilities on how to act accordingly, it is the prerequisite for players to use correct and reasonable techniques and tactics in the match, it effects the strain capacity of player. Thus, we should take the tactics thinking ability of basketball player as a basic training of basketball to develop, which can further improve our country's basketball level.

To sum up, the results of our research show that the education information technology system designed for the basketball tactics teaching accord with the rules and characteristics of basketball, it has the advantages of simple, straightforward, effective, safe, convenient, and cheap. As the table 3 and table 4 shown, it can improve the students to master the ability of basketball skills, and can boost the player to have a better performance in actual combat.

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