

Study on the Teaching Method of Discus Throwing Technique

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Abstract. From the teaching methods and teaching structure aspect, the teaching reform of discus throw technique in physical education and health course is discussed, with a purpose that students are made to faster, better known well about the technology in a relatively short period of time and thus the quality of teaching is improved. For the teaching of new design, compared with conventional traditional teaching methods, experiments were made. Via 36 man students of two classes paired grouping were carried out and decomposition teaching and the whole teaching, two kinds of teaching methods, were employed. The results showed that in the aspects of technical assessment, up to the standard and grades improvement extent the experimental group was better than that of the control group and significant difference existed. The new teaching method has the advantage and feasibility.

Keywords: Discus technology, teaching method, teaching reform, effect.

1. Introduction

Discus throwing motion is an event whose technique is more complex. In the past in the discus throwing technique teaching that we basically used was decomposition teaching method¹⁻³. That is, firstly the beginning in situ discus throwing technique teaching is conducted and then the dorsal rotation discus throwing technique teaching is transitioned. On the guiding ideology of teaching, it is in the teaching of the decomposition the integrity of the technology is obtained, throwing out better results. Decomposition of teaching separates the integrity of discus throw technology. Even the single action is mastered, but because the conditions and complete single action changed, nor in the full technology exhibits single movement technology. Due to the limitation of class hours number, it caused that the students cannot grasp and understand the role of single technical movements in the overall technology, fully in accordance with the guidance and arrangement of teachers the learning was made, the students' enthusiasm and independent practice consciousness was limited⁴⁻⁷ and improving students' sports technical ability and skills were not conducive. This is the main reason that made a better score by in situ the discus throw method than that by the rotation discus throw. Therefore, in reforming the teaching of throwing discus we changed the decomposition teaching as main teaching guiding ideology in teaching, followed the complete teaching as main guiding ideology of teaching and in the teaching arrangement paid attention to systematicness and to the real results of practice methods and its basic technology integrated use.

2. Research method

2.1 Object of study

The object of this experimental study is 18 boys in class 1 of the specially selected course of track and field and 18 boys in class 2 of the specially selected course of track and field. Total was 36 people.

2.2 Experimental grouping

The experimental objects were randomly divided into two groups and achievement tests were made pre-teaching. Further, according to the test results, in accordance with the principle that after the scores of two groups of experimental subjects were averaged the score was basically identical, experimental group and control group were divided into.

2.3. Evaluation of experimental results index

After the experiment, through the technical evaluation and up to the standard, the teaching effect was assessed. It is requirement that the experimental group and control group be in the same field at the same time and be uniformly assessed by physical education teachers. Technical evaluation scores were evaluated by grade in accordance with the single standard of "teaching program". MQS (up to the standard score) was obtained under the situation "The rules of Track and Field Competition" was strictly executed.

2.4. Experimental factors control

The number of teaching time of the experimental group and the control group was same. The time interval between class and class, exercise time, exercise venues and equipment was basically the same.

For teaching and technical evaluation, "Single blind" form that the teaching object did not know experimental purpose and the technical evaluation team did not know technical evaluation object, was used.

The teaching of experimental group and the control group was acted as by the same teacher.

The students were required to review after class, but no guidance, no check.

3. Several measures of teaching reform

3.1 In order to complete the teaching, highlight the main technical links

In teaching from the actual situation of the school throw teaching the complete technical teaching was main. It was emphasized to let the students grasp the main technical links, considering the effective improvement of integrate technology. In conducting the complete technology teaching, the standard actions of the main technology were grasped. At the same time physical quality was paid attention to and the throwing special ability and other aspects of the practice was enhanced to let the students understand the significance and important role of physical quality and throwing special ability and other aspects of the practice in the discus throwing back rotation complete technology and to master the practice methods of development of the physical quality. Thus in the implementation of integrated technology teaching it should be divided into three stages: the complete technology teaching, improvement technology teaching, to consolidate and improve the teaching.

Complete technology teaching is the first stage of conducting basic skills teaching. This stage is to let the students first through the teacher's demonstration and explanation and preliminary from sensory organ the complete technique of back to technical rotation technique for discus throwing is understood. And by means of the unarmed imitation, holding apparatus imitation, throwing light apparatus, throwing the discus process *etc*, the whole discus throwing techniques are mastered. Combined with the exercises of physical quality, the combined exercises means of special technology, *etc*, the discus throwing technique actions and technical links as well as their role in the complete technology are understood to enable students to know the function and significance of physical quality in the discus throwing techniques exercises. To this end, focus of the teaching of this stage is: Apparatus performance is familiarised, the ability to control apparatus is mastered, the basic skilled movement of discus throwing is mastered, and coordination, dexterity, flexibility and other basic physical qualities *etc* are developed.

3.2 The classroom teaching structure adjustment

In order to complete the teaching reform of this discus throwing techniques, the existing teaching structure of four parts was adjusted to the beginning part, basic part and the end part, the teaching structure of three parts. Its contents and tasks are:(1) the beginning part: first the teaching routine is carried out to the students, after that to the students the teaching program, content and requirements are stated explicitly. Combining with the teaching task, to the students the task of teaching is assigned and the teaching emphasis of each lesson is stated explicitly. Students are let to do good preparation on learning discus throwing back rotation full technical in thought and psychology. The students themselves are let to think how to conduct the study of throwing discus rotary technology. (2) basic part:combining the teaching contents of course, preparative activities and specific preparative

activities are carried out, Practices of special technical combination and basic technology are carried out. (3) end part: relaxing arrangement activities are carried out, the classroom teaching are summarized, and the teaching content of next lesson is arranged.

The teaching of the basic part should be divided into two processes to be conducted. Firstly, the technical characteristics of the discus throwing are combined, and the special preparative activities are adopted to conduct the preparative teaching of special skill teaching. Secondly, combined with the technical characteristics and difficulties of discus throwing, after the preparation activities for the discus throwing techniques were gotten through, unarmed imitation, holding light equipment imitation throwing exercise can be firstly used, further holding discus technical exercises can be conducted. Such technical teaching program arrangement is more systematic, the preparative process of teaching reduces the sports injuries in the teaching process of throwing techniques. The combining practices of the special techniques have done it that technology is induced by the special combination exercise, which both develops the special quality and again the conducts basic technology practice. The aim of teaching is clear and the pertinence of teaching organization and exercises is strong, improving the students' enthusiasm to practice, increasing the time of basic part of classroom teaching. Such teaching reform of discus throwing technique makes the number of throwing apparatus that students exercise complete technology increase by 45% - 50%. It can be known from this that the classroom teaching structure adjustment, rationality of organization teaching, is the guarantee of improving the effect of classroom.

3.3 The new teaching mode adjustment

The new teaching method is guided using modern teaching theory, combining with sports teaching principles and rules, as well as the current teaching practice, centering around the main characteristics of modern discus throwing techniques, using complete technology as the main body, using join of the technology on the way of the discus throwing and final push force technology as the focus, in order to improve the shot speed as the center.

With the complete technology as the main body, auxiliary exercises are applied to strengthen the key of technology. Namely, at the same time when in carrying out the complete technology as the main guiding ideology, every class uses definite decomposition exercises to strengthen a certain technique segment. This decomposition practice mainly refers to join of the technology on the way for throwing discus and technology of the last exertion. The purpose of this method of work is to let the students in the complete technology realize an important link, simplifying the teaching steps. Its teaching process is:

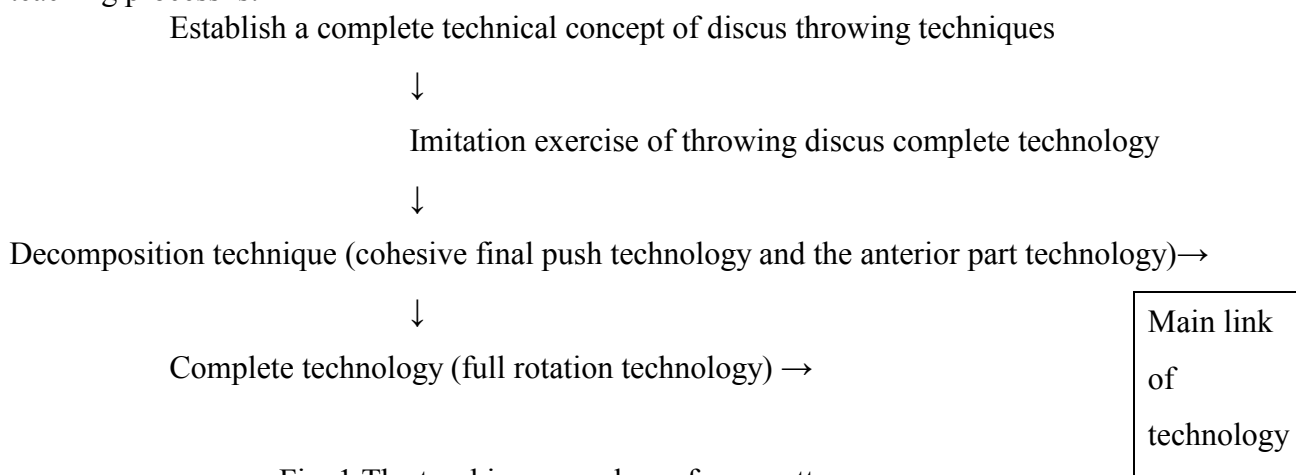


Fig. 1 The teaching procedure of new pattern

4. Design and application of the teaching

4.1. Teaching design basis

According to the characteristics of the discus throwing back to rotary technology, using the complete technical teaching is main, teaching design is conducted using dynamic rotation as the key

link. The proportion of the complete technology teaching is highlighted, making the students more effectively grasp the correct discus throwing complete technique.

According to the laws of the formation of sports skills, in the initial stage of action formation, by the means that the students are let to watch intuitively the technological imitation of teacher and the students themselves imitate etc, the action concept of complete technology is established, each link of the technology is roughly mastered. If in very beginning the decomposition teaching is excessively used and the details of movements are emphasized, the students cannot be let from the generalization stage quickly transit to the stage of differentiation. Thus, the complete teaching can make students master the correct rotation technology as soon as possible in the limited teaching hours.

Teaching characteristics of discus throwing course of the present physical education and health course are: the teaching hours are little, the teaching contents are much, so it is not suitable to use the decomposition methods of too large proportion. The discus throwing back rotation technique teaching was turned into to the teaching where the discus throwing in situ technique is primary, violating the teaching requirements and teaching objective.

4.2. Application of the teaching method design

Teachers used the integrated teaching method to conduct the whole actions of first demonstration for the discus throwing back to rotation technology, after it, demonstrated and explained. The integrated technical actions are divided into: Spin up → left leg single foot shores up rotation → right foot falls to the ground and shores up → left leg evacuates back to become the in situ posture before throwing → feet are thrust to send right hip → chest taking arms "whipping", will throw discus etc, technical links. The integrated technical actions are mainly strengthened, the balance of the body is maintained, the join of actions is paid attention to and the speed of moving discus is quickened. It is required that the order of exertion be correct, the movement be fluent, coherent and join.

The students conducted discus throwing back rotation technology division unarmed imitation practice under the guidance of teachers. The main practice method has the following kinds: (1) Run-up, the rotation exercise that left leg single foot supports: exercise students back to the throwing direction, two arms held flat side, center of gravity is transferred from the center to the anterior soles of the left feet to conduct the autochthonous turn action of 360 degree. Continuous conducts are required for many times, balance of the center of gravity is maintained smooth and steady, and the balance of the body is kept. According to the leg strength the students can be allowed to lower the center of gravity. (2) Right foot landing supporting practice: practicer stands head on, left legs are in front, right leg is back. In walking, the right leg steps forward, the right knee and right leg are driven by hip, right leg is in front, and the left leg is behind. The action of two feet is mainly known from experience. The body is asked to move in horizontal direction, with both feet on the ground in correct position, and leg is kick and hip is rotated. (3) Exercise where the left leg is evacuated back to in situ posture before throwing: the practice student back to the throwing direction, bipod open is slightly wider than the shoulder. When throwing arm is pre put to the maximum limit, the center of body gravity is moved to the right leg, then left leg is quickly moved back a step to touchdown in the nearby of the right leg heel. Inside of the forefoot of left foot is used for touchdown to brake, and right leg rapidly tic-turns into the in situ throw discus best posture. The practice is repeated. The coordination, coherence, join for upper and lower limbs are mainly known from experience. The actions are requested to be of coherence, join. (4) Dorsiflexed kick delivers right hip, chest taking arm "whipping" practice: practitioners broadside on throwing direction and stand, two arms held flat side, the hand arms pre set the maximum twist degree of body, gravity center is pressed to the right leg. Then driving leg, hip rotation and arm swing action are conducted to make the body to be turned to the throwing direction. The practice is repeatedly repeated. Driving leg, hip rotation, chest cast, arm swing and hand action form are mainly known from experience. It is required to know from experience about the order of exertion and about it that at the time of "whipping" left side actively props up braking body.

The students conducted discus throwing back rotation technology division complete imitation practice under the guidance of teachers. In the throwing circle, "contrary 7 word" type rotary practice

is drawn, and the trajectory route of human displacement is mainly known from experience. It is requested that stand is wide, center of gravity is low and the two feet falls within a prescribed line. At the same time, it is required that the students withdraw the left leg back into the posture in the original place before throwing → Dorsiflexed kick delivers right hip → chest taking arm "whipping". The technical actions of these parts are conducted in a coherent and complete connecting way.

Students held apparatus for the complete technical exercises of discus throwing. It can be transitioned from the rotation of taking goods, the back rotation of holding light equipment, the rotation of holding disc, the rotation of holding discus of different weights to discus throwing back rotation technical action of holding standard weight discus. The correct technical movement exactness, the movement fluency, coherence and cohesion, release speed etc aspects were emphasized. The different mistake actions that the students made are aimed at, the different guidance is given.

5. Results and analysis

5.1 Result

In accordance with reform basis and implementing measures, after the discus teaching practice of 32 hours, acceptance test was simultaneously made for the experimental group and the control group. In the examination, for technology assessment the standard was drawn up by the course teachers to unify to grade. The process of score determination was made according to the latest "The competition rules of track and field". The discus tht was the same as the one in the original test, was the discus for exercises. Each person made 6 times trial throws, and technical evaluation and up to standard were simultaneously made. The results are as shown in Table 1.

From table 1, it is not difficult to find that an average score of the experimental group was reached to 24.21 meters. Compared with the average score of the original test, 18.10 meters, 6.11 meters were raised, while for the control group 2.72 meters were raised compared with the average score of test, 18.31 meters. The students of the experimental group were better than the ones of control group, which has a significant difference ($p < 0.05$). It is confirmed that this teaching method is effective.

Table 1 Contrast table of experimental results

Assessment project and achievement	Experience group			Control group		
	Number of participant (person)	Number of pass (proportion)	Number of failure (proportion)	Number of participant / people	Number of pass (proportion)	Number of failure (proportion)
technical evaluation	18	15 (83.3%)	3 (16.6%)	18	14 (77.7%)	4 (22.2%)
up to the standard	18	16 (88.8%)	2 (11.1%)	18	14 (77.7%)	4 (22.2%)
original average score		18.10 meter			18.31 meter	
present average score		24.21 meter			21.03 meter	
average increase		6.11 meter			2.72 meter	

5.2. Analysis

The new teaching method adoption set out from the point of view of totality and gave first place to the complete dynamic rotation, ensuring the superiority of integrated teaching, a significant increase

in discuss throwing technical exercises number, at the same time also an increase in the intensity of the whole teaching process. The continuity and integrity of action was emphasized. At the time of beginning, the rotation amplitude was smaller and the speed was more slowly, so at this time the students made the complete technical exercises under the situation of reducing the requirements. However, when the extent that the students mastered was constantly skilled, under the condition of pledging the basic technology practice the each link action of technology was improved with emphasis. So the students could quickly understand and master the main points of each technology in complete concept to make the action master quick and firm.

Under the situation of effect of the factors that the teaching hours were smaller, the ground was not enough, and the students' physical quality was general, the complete teaching method highlighted the merits of complete technology teaching, made the discuss throwing technique actions achieve the purpose of coherence and cohesion, helped the students faster, more accurately grasp the actions and improve the movement quality, and realized technology movement dynamical design. The complete teaching method has programmed and diversified characteristics.

6. Conclusion

According to the optimization of teaching theory, the redesign of teaching model, and the further optimize of teaching program, it is proved by the experiments that the students scores in the experimental group were significantly better than one of the control group, confirming that the teaching effect of adopting new teaching method had a significant difference ($p < 0.05$), superiority and feasibility.

The pertinence of the teaching method is strong, so that in studies students from beginning to end had the positive initiative. At the same time without changing the technical actions, the students were let to have a kind of feeling that the technical actions are simple and are easily studied, which was in favor of the students to overcome weariness, fully mobilized the initiative of each student and arouse the enthusiasm of students to achieve the best teaching effect in the fixed period.

The reform of the teaching model broke the traditional single teaching mode, so that students became from the "passive learning" to "active learning" and could independently study to give full play to the role of students' main body. The teaching link was simplified, the generalization period of students learning skills actions was greatly shorten. At the same time when the students learnt the complete technology, the exercises of key and difficult parts were effectively highlighted, achieving better teaching effect.

The reform of the teaching methods enabled students to become the main body of the class and the students had the ability of conscious learning. In learning, both practice was made, again self training, self-study, self control was done. The interaction between teachers and students were strengthened, the classroom atmosphere was active and the teaching effect was good.

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