

# The Exploration of the Relationship between Students' Thinking Ability and Sports Skill Formation in the Physical Education

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**Abstract.** Thinking is summarized on the human brain indirect reflection of the process of objective things. In physical education teaching, the formation process of motor skill can not go without thinking, nor can it go without analysis and integration of motions. On the basis of analysis and synthesis, the concept of action representation can be converted into action, the students can master the behavioral essentials and rules. In the teaching, through "questions, disambiguation" can change passive learning into active learning, to develop students thinking in all aspects of quality, the development of students' thinking quality and to promote the sports teaching to a deeper realm of "rational", which not only developed the students' intelligence factors, but also effectively develop the students' non-intelligence factors, so as to improve the efficiency of classroom teaching.

**Keywords.** thinking ability; movement skills; formation; the quality of teaching

Thinking is summarized on the human brain indirect reflection of the process of objective things. It reflects the nature of the object properties, and the internal connections and relations between the things. In physical education teaching, the formation process of motor skill cannot go without thinking, nor can it go without analysis and integration of motions, on the basis of analysis and synthesis, the concept of action representation can be converted into action, the students can master the behavioral essentials and rules. Therefore, in the teaching, pay attention to guide and cultivate the students' positive thinking, can make the students from a lot of sports teaching appearance, to recognize the connotation of sports teaching, to deepen the understanding of the teaching task, promote sports knowledge and skills to master and formation, and the advanced stage of rational knowledge of sports teaching. In this paper, from the angle of sport psychology, combining with the characteristics of physical education teaching and the rule of students' thinking, in physical education teaching, the cultivation of students' thinking ability and scientific theory to promote the improvement of teaching quality carries on the preliminary discussion.

## 1 The basic process of thinking in sports teaching

### 1.1 Analysis and synthesis

Analysis is to, in the mind, divide the whole into parts or to extract its individual characteristics and specific aspects. For example, the teaching of the high jump technology and the stage of the short run can be divided into individual actions, for separate exploration and research. Comprehensive is put the This is an Open Access article distributed under the terms of the Creative Commons Attribution License 4.0, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

parts together of things in your mind, or combine individual characteristics, specific aspects of things. For example, in every action of the high jump technology in teaching, combine the different stages of the sprint into consideration, in this way, the "the high jump " and "sprint" have a comprehensive understanding. Analysis and synthesis is the process of correspondence and contact each other, any more complex thinking process often need both analysis, also need to be integrated. For example, as the fosbury style high jump movement, we should not only analyze the action of run--up, running speed, distance and height of jumping, rod or landing action whether appropriate, should also be comprehensive analysis of the whole process of motor skill.

## **1.2 Comparisons**

Comparison is to compare the objects or phenomena in the mind, make sure what in common and different points between them and mutual relations. By comparison, people obtain more and more perfect and correct understanding of things. No comparison there would be identified, no comparison would not constitute thinking about a particular aspect of the comparison is the basis of all understanding and thinking. By comparing only, we make understanding level gradually increase. For example, the high jump and long jump run-up, jump, fly, only more than the long jump jump a rod part, but its essential character is not a reed, but a takeoff speed and vertical distance. Comparison can be from different angles and different aspects, can also be from the same thing different phases in the process of development.

## **1.3 Abstraction and generalization**

A general characteristic of abstraction is to separate things in your mind, and give up the thinking process of individual features. Generalization is the general characteristics of similar things in your mind together, as a kind of thought process. Abstraction is mainly on the basis of the analysis, comparison, and sums up the main were conducted on the basis of abstract, comprehensive. Therefore, comprehensive analysis and abstract generalizations have close relationship. For example, in the case of loss, through the analysis, synthesis, comparison, find out the failure factors from all aspects, and then give up that unimportant factors, and draw out the nature of the most decisive factor--such as paralysis lightly, complacency, this is the abstract. When we put the main causes responsible for failure of each game, combine or linked, so that we find a necessity, "take the enemy lightly and complacent, inevitable failure". Analysis, synthesis, comparison, abstraction and generalization are thinking process. Through the process of thought people can through the surface of things, into the nature of things, reveal the meaning of things, grasp the law of things. In this way, people can make a leap from perceptual knowledge stage to rational knowledge stage, so as to form a certain concept in your mind.

## **2 In the sports teaching, the characteristics of the students' thinking**

Physical education is a practical course. From the analysis on sports teaching the knowledge structure, it is a comprehensive multidisciplinary knowledge. The students master knowledge of basic stage has in common with other disciplines, namely: the awareness teaching materials, understand the teaching material, to consolidate knowledge and apply knowledge stage. From the analysis on the teaching, combining knowledge, theory and skills, is different from other sports teaching discipline teaching a prominent characteristics, it is not only the process of imparting knowledge and skills to students, and physical development of students, enhance physical fitness, promote the formation of the youth good psychological quality and the development process. Direct involvement in various physical exercises under the condition of thinking activity, theory as the guide to inspire students with positive thinking, make the mind and body closely combined with practice, not only help to improve students' interest in learning, but also can promote the improvement of teaching quality.

Sports teaching, the thinking is the process of the information in the brain after continuous

analysis, comprehensive, comparison and abstract and so on processing, and to guide the action process. Therefore, in the teaching, must know rules--from vivid intuitive to abstract thinking, to practice, improve gradually; Change rule must follow the function of the body, the movement skill formation rule and adolescent physical and mental development rule. The characteristic of sports teaching has decided the vivid visual image thinking and abstract logical thinking, the combination of this is the outstanding characteristic of students' thinking in teaching.

### **3 In the sports teaching to cultivate students thinking ability of the physiological mechanism and the method**

In the sports teaching, mastering the knowledge and skills depends only on feeling, perception, representation and memory, but on active thinking. To arouse the students' thinking inspiration, so that the students have strong curiosity and desire of applied theory in practice, create conditions for the development of students a variety of different thinking quality, the most fundamental problem is that teachers in the specific implementation of the teaching method, heuristic teaching is reflected in each paragraph and teaching.

Exercise physiology tell us that the students master the process of knowledge and skills, is in essence the cerebral cortex to consolidate and recovery activities--forming process of conditioned reflex in appropriate excited state, the brain is also conditioned reflex to establish the best time, and inappropriate excited is unable to establish a conditioned reflex, even affects the establishment of a conditioned reflex. Forming regularity of sports skill can be divided into generalized-- differentiation--consolidate--automation stage, in each stage of teaching students knowledge of motor skills, understanding and form has the close relation, the design of teaching methods and use, should follow its physiological mechanism, and opens the lock of students' thinking of the design of teaching methods and use must conform to and also based on its physiological mechanism.

#### **3.1 Create a problem, guide students to active thinking, and cultivate students' ability of comprehensive knowledge**

Doubt easy cause directional reflection. People in practice activities, problem solving and thinking process are closely linked. Findings need to be thinking, problem solving process, even more to thinking, thinking ability is developed gradually in the process of problem solving. Problem is the power of thinking, to promote the further development of thinking. Therefore, attention should be paid to create problems in sports teaching, guide students to analysis and solve problems in learning, cultivate the students' thinking ability. But the questions according to teaching contents, teaching objects to set, avoid by all means the same, and do it from easy to difficult, from easy to complex, in-depth step by step.

Teaching in the interpretation of the beginning of the demonstration is to establish a conditioned reflex, students of neural connections in the generalization stage at this moment; at this stage the main task is to make students to establish correct action representation, clear structure, main point, specification and method. And pay attention to the students have encountered various kinds of sports into known the concept of the facts, guide and inspire the student to understand and grasp the concept of action. Skill teaching materials in the diving forward roll, for example, in front of the interpretation of the demonstration can establish to: What does the diving forward roll technology consist of? Had anything to do with forward roll? Ran fast the end of the sprint teaching can ask: what is the finish sprints behavioral essentials? Thus to arouse the students' voluntary attention. Inquiry can also be in the teachers' demonstration, teachers should be flexible to use. At this stage must remind students to pay attention to teachers' instruction and demonstration action careful observation. Attention, careful observation is perceived motion image, understand the action program, structure, methods of the key. Due to the fact that the observation is thinking consciousness, the observation process itself including positive thinking. Observation is in a planned way in the course of sports teaching, have a purpose, more lasting thinking consciousness. Observation stage characteristics of students' thinking in image

intuitive thinking, this requires the teacher's demonstration action to correct, the specification, relaxed and natural, beautiful and easy, explain behavioral essentials language expression to refining, accurate, easy to understand, so as to attract the attention of students and association.

Visual characteristics of the sports teaching provides a good framework for the student active learning knowledge skills, teachers' teaching method make the finishing point lies in how to create problems, scene and just the right hint, make physical appearances to students with vivid and intuitive mental stimulation, make their intuitive image thinking, logical thinking and abstract concepts, on the basis of the organic combination of thinking and creative success in practice. In physical education teaching, students only actively to carry out the thinking activity, can only be a good grasp of basic knowledge and skills of the sport, to improve their physical and mental health, and make students' thinking ability to get a deeper, more abundant development.

### **3.2 To develop knowledge, logical teaching material itself, make a lot of physical exercises and closely linked to the positive thinking**

Knowledge connotation of the sports teaching material is very rich, in teaching process, teachers use the power of enlightenment thinking, inspire the students' learning initiative and enthusiasm is one of the important means to improve teaching quality. Lateral slide of shot put teaching material, for example, to make the students improve lateral slide of shot put, just teach students to master the lateral slide of shot put technique is not enough, must make students realize the shot put results of three factors (throwing Angle and shot put to the height of the initial velocity and shoot) of different roles and relationships, and make students understand when force distance (cannot leave the throwing circle) and throwing Angle limited ( $38^{\circ}$  -  $42^{\circ}$ ), to push the shot put further way is to enhance power, improve the velocity of shots when the shot put.

Does in the teaching, teachers use different speed of shot put demonstration, let the student to compare, give enlightenment on students, the students' thinking active, they through the analysis and comparison, thus realize the hand speed of shot put results, the influence of the student to the shot put this understanding and the understanding to the final conclusion and applied in practice, can receive the good learning effect. Ran fast, for example, the teaching material establishment and grasp of the concept of stride length and step length in teaching, if the development speed of general practice is monotonous and boring, not easy to cause the students' interest in practice. In the teaching, by making the students run different spacing at different speeds (tread marks ran) practice method, can make the students in the process of teaching through the self-adjusting stride length and step length for different ontology sense, through the analysis and induction, get basic knowledge. Teaching, monotonous boring teaching materials, with a certain teaching methods to inspire and mobilize students' interest in practice, can arouse students' thinking, make the knowledge learning, physical exercise of teaching practice, it can not only accelerate motor skill mastery and formation, improve the teaching effect, but also can make students lifelong benefit.

### **3.3 cultivate students' positive thinking with the help of the internal language, make the student's knowledge and ability to get good development**

General image thinking and abstract thinking is to rely on words, so the words may be called Language thinking. However, the practice has proved that the language is not the only element of thinking, have no language or loss of the verbal ability has a similar thought. But after people mastered the language, thinking is mainly by means of language. Thinking through language, just like content through the form of expression. The language is the direct expression of thought. One of the main tasks of sports teaching lies in the transformation of students motion perception noumenon feeling to the concept of sports knowledge and skills, and be expressed in the form of words, make the abstract knowledge in all the subjects to a specific physical knowledge. After teachers' interpretation of the demonstration, let the students reflect the observed action in a certain period of time, space and strength characteristics (such as trajectory, amplitude, direction, speed and other technical elements)

organized in accurate concise language, its role is to enable students to improve the quality of sports practice, strengthen the understanding of behavioral essentials and memory, make the teacher get the student feedback information in time and adjust teaching methods. This is not only beneficial to the completion of teaching tasks, but also to develop the students' thinking ability is very beneficial. In the teaching, we often found that the language ability of students can't meet the requirements of teachers from the start because of the quality of thinking. This requires teachers to emphasis on language points, especially language and thought inevitable inner link, causes the student to understand language is a direct expression of thinking; they can gradually reaches a certain level through language practice.

In the sports teaching, if students can often make thinking of internal language into external language and can make the language expression structure more rigorous, coherent as well as logical, so the students can get good development in terms of knowledge and ability.

#### **4 The conclusion and suggestion**

(1) Practices prove that the sport teaching provides a good condition for developing students' thinking ability. To utilize students' thinking ability means, can cultivate students quality of all aspects of thinking. The thinking quality of students can promote the development of sports teaching to become the deeper reason kingdom ".

(2) Practice has proved that the development of physiological mechanisms must meet students' thinking skills form the basis sports law. Thinking skills of students in all aspects of teaching, just right of the suspect play a crucial role in setting the means of physical exercises and materials knowledge is closely inspired by the essence of students' thinking ability, good presentation skills students learn knowledge and skills, the development of thinking cannot be ignored. In teaching, through the "Create questions, Answer questions" can change from passive learning to active learning, not only the development of the student's intellectual factors, but also to effectively develop the students' non-intellectual factors.

(3) Physical Education aims to develop their thinking ability of students should exercise is to make students understand the basic principles and methods of scientific exercise independently. To adapt to life-long exercises and live entertainment.

(4) Physical education is succinctly explanation and more training. Through the process of teaching, students build their own laws according to the motion proprioception technology to make a lot of physical exercise and positive thinking in close contact in practice manipulation first signal and the second signal system have been reasonable development. Teaching located the suspect can \not be too much, too much focus no, it is not easy to arouse students' attention. Located the suspect targeted not only to the language refined, accurate, vivid, interesting to the students leeway, but also for all students, for different purposes, different difficulty problems, to varying degrees, as appropriate to allow students to answer. Teachers give summary evaluation according to the answers provided by students. Because the summary evaluation is praised and supports to the positive thinking of student. Confirming more advantages, pointing out deficiencies, suggesting ways of thinking, make the right conclusions. By setting question, make the question of thinking to a new height.

(5) Heuristic teaching is a teaching of any guiding ideology, not a specific teaching. Physical Education Teaching instructive to measure whether heuristic, the key is to look at the ability of teachers to mobilize the enthusiasm of students learning and thinking initiative, rather than a single judge from the form. Teaching, inspiring students thinking skills and methods of design content cannot exceed the level of students 'knowledge and ability to accept, otherwise it would not benefit the development of students' thinking ability, and also cannot receive the expected effectiveness of teaching.

(6) In classroom teaching, developing students' thinking ability of means, steps, methods, according to the teaching tasks, teaching material characteristics and students' psychological, physiological characteristics, accept ability of actual, reasonable design and arrangement. To accomplish know fairly well, and to foresee the possible problems in teaching and arrange the

corresponding remedial measures, make the heuristic teaching is reflected in each teaching link. Understand the teaching material, grasps the difficulty on teaching materials, teaching material systematically and materials are linked to each other between teachers design the development of students' thinking ability teaching base. To constantly sum up experience, and gradually make the questions to be standardized, rigorous, innovative, timely, refining and clever, so as to improve the efficiency of classroom teaching.

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