

Research on the Application of Juvenile Psychological Development and Sports Acquisition Law System in Physical Education Teaching

Lyu Xiangjialin

Hubei University of Chinese Medicine, Wuhan, China

Universiti Malaya, Kuala Lumpur, Malaysia¹

Adolescents' physical and mental development has obvious age-stage characteristics. Therefore, before the implementation of physical education teaching, it is necessary to fully analyze the laws of adolescents' psychological development and fully understand the laws of adolescents' physical development and exercise acquisition. The purpose of this study is to start from the actual needs of physical education teaching and to fully understand the laws of psychological development of adolescent groups. After the review and analysis, the law of adolescents' sports acquisition is summarized and summarized, so as to form the system of adolescents' psychological development and sports acquisition law in physical education teaching, lay a good foundation for physical education teachers to implement teaching on the teaching objects of adolescent students in a targeted and efficient manner, and ultimately promote the benign development of school sports.

Keywords: teenagers, physical education, psychological development law, sports acquisition law

Introduction

This study starts from the law of adolescent psychological development, and makes a full understanding of the physical and mental health development of adolescents through the aspects of body shape, physical function, sports quality, and health quality. It also summarizes the rules that physical education teachers should know and master in youth physical education teaching, so as to help teachers objectively and comprehensively understand the actual situation of young people's teaching objects, help them prepare for teaching, and use corresponding targeted teaching methods and countermeasures. In the end, the best teaching effect will be obtained, the sports performance of young people will be improved, and their healthy and sustainable development in both physical and mental aspects will be promoted.

The Laws of Physical Development of Adolescents

Before physical education teachers teach young students, they must first understand the laws of physical development of students. And according to the age and grade of the students, and the requirements of the comprehensive school, the weekly class teaching plan is formulated and the curriculum teaching plan is written.

Lyu Xiangjialin, Master, assistant lecturer, School of Physical and Health Education, Hubei University of Chinese Medicine, China; Ph.D. candidate, Faculty of Sport and Exercise Sciences, University of Malaya, Kuala Lumpur, Malaysia.

Physical education teachers should systematically organize and implement teaching according to the actual situation of the students in the class.

According to the relevant literature, students in all grades of elementary school, junior high school, and high school have their own developmental characteristics according to their age. In the 1st to 3rd grades of elementary school, the fast-twitch muscle fibers (also known as white muscle fibers) of primary school students are developed, and sprint teaching is carried out at this time to adapt to the physical conditions of the current students (Feng, 2005). In the 4th to 6th grades of elementary school, the proportion of slow-twitch muscle fibers (also known as red muscle fibers) in the muscles of primary school students will gradually increase, which allows most students to participate in middle and long-distance running events such as 400-meter and 800-meter running. The student union has emerged in the long-distance running competition of the school sports meeting, showing the superiority of the glycolysis energy supply system and the aerobic oxidation energy supply system, so the physical education teacher can go to the corresponding grade to select long-distance runners for the school track and field team to cultivate their sports. Strengths win glory for the school. In addition, the height of teenagers aged six to 13 will increase accordingly with age, and they will enter puberty in junior high school. At this time, their height growth is particularly obvious, and generally lasts for about three years. After entering high school, the growth rate of height will gradually slow down, and the height of girls will basically stop growing at the age of 17 and boys at the age of 18 to 19. In the process of adolescents' physical development, there are some factors that will affect their growth and development, among which genetic factors, as their inherent innate factors, will determine a student's later development. In addition, external factors such as later exercise patterns, sleep, and dietary nutrition will also subtly affect the growth and development of adolescents. Puberty students are generally in the middle school stage, their physical and psychological development will be more mature, they are busy with their studies in order to cope with the high school entrance examination, they will be a little weak in physical education class, and they often ignore the extra exercise on weekdays. At the same time, these adolescent students may have rebellious emotions, and are very likely to have behaviors against teachers. Therefore, physical education teachers should fully grasp the laws of physical and mental development of young people, reasonably set up teaching plans according to their age and other conditions, constantly reflect and improve teaching methods and means, so that students are willing to learn and practice actively, and construct a good teacher-student relationship. During the teaching process, physical education teachers will encounter students with different body shapes, such as tall, short, fat, and thin. Based on this, physical education teachers should pay attention to observe students' physical fitness, especially body shape, during class teaching, which is a very important aspect of students' physical functions. For thinner students, let them do appropriate muscle-building exercises, such as push-ups, sit-ups, pull-ups, and other freehand exercises. At the same time, they can also assist in light barbell arm retraction exercises to make their bodies stronger and improve the physical fitness, and strive to have excellent sports performance. For short students, teachers should ask them to have a balanced daily diet, supplement milk, eggs, and other calcium-rich and protein-rich foods, and supplement them with auxiliary exercises such as horizontal bar and arm lifting to promote height growth. For obese students, the physical education teacher should actively lead them to participate in every physical education class and exercise between classes, and at the same time take part in physical exercise to lose weight after class according to the teacher's advice and guidance. During this period, the teacher should encourage, support, and guide the students, carry out physical exercise, and strive to increase their confidence, thereby improving the learning enthusiasm of obese students and making fitness a habit.

The Laws of Adolescent Sports Performance and Acquisition

The main source for students to acquire sports knowledge and skills is the school classroom, in which the presence of physical education teachers has a subtle influence on students' movement acquisition and knowledge experience. Therefore, it is particularly important for physical education teachers to fully understand the sports performance and acquisition rules of adolescents. The movement performance in the youth class can provide immediate feedback to the teacher on the student's learning and mastery of movement movements, which in turn can help the teacher better guide and correct the students in a targeted manner. In the final exam, the sports performance and sports performance of teenagers in each sports assessment item can reflect the strength and mastery of the student's learning ability in this semester and even the whole school period. In other words, teenagers have a good learning attitude, listen carefully to the teacher's suggestions for improvement, and constantly correct themselves in class exercises to achieve perfection. They can demonstrate good motor skills and achieve excellent sports results in final exams and sports competitions. During this process, physical education teachers' attitudes, emotions, and imposing strategies to students have a decisive impact on adolescents' learning of physical education skills and knowledge. Studies have shown that if physical education teachers properly encourage and reward students to make students more confident and inspired, then students will show positive feedback, such as: accurate movements, good sports performance, etc. (Pang, 2017). If the teacher does not understand and master the students' sports performance and acquisition rules and the cognitive development rules of young people, does not consider from the perspective of students, and reprimands, abuses, and punishes students for wrong actions, then these young people will use negative feedback against the teacher.

Laws of Movement Acquisition and Mastery

According to the theory of sports training, there are four stages in the formation of human motor skills, namely: generalization stage, differentiation stage, strengthening stage (consolidation and improvement stage), and movement automation stage. The movement acquisition of young people also has to go through these four stages step by step to finally master the movement movements, so as to realize the automation of the completion of movements (Tian, 2000). Among them, the generalization stage is the stage when adolescents just start to learn new motor actions. For students, the structure of knowledge and skills mastered in the initial learning is fragmented. After much deliberation, students may try to integrate the key points of acquired knowledge and skills. During the learning process, students understand and remember in the brain through thinking processes such as representation, imagination, and memory consolidation, so that they can be used directly in the later stage and reduce unnecessary recall and thinking time (Huang, 2016). In this way, students enter the differentiation stage from the generalization stage. Afterwards, students correct their deficiencies in a targeted manner according to their own sports performance, and carry out intensive auxiliary exercises under the leadership of the teacher to consolidate and improve specific exercises. This is the intensive stage. After repeated practice in the later period, to overcome the law of the Ebbinghaus forgetting curve, and to continue to strengthen the movements, the brain will issue movement instructions, and the movements will be performed directly, completely, and smoothly. This is entering the stage of movement automation. According to the different age groups and grades of teenagers, teachers should fully teach students in accordance with their aptitude, specifically understand and master the characteristics and laws of the students' movement skills, formulate corresponding teaching plans in combination with the requirements of schools, local education departments, and curriculum standards, and carry out targeted high-quality teaching.

Laws of Movement Performance and Cognitive

On the basis of action acquisition, students gradually enhance their perception and understanding of new motor skills through practice, so that the body can produce corresponding sensations and perceptions, and form action memory in the mind, which will be expressed by the nerve feedback to the muscles to form “muscle memory”. There are also rules in the performance of students’ movements. Specifically, there are vertical rules and horizontal rules. Next, from the perspective of student development, we will first introduce the longitudinal laws of youth sports performance. According to the research of Yerkes and Dodson in the psychology of physical education, the level of students’ action efficiency is affected by their motivation. Students who are more or less motivated cannot achieve the highest level of efficiency. Only when the motivation intensity is at an appropriate level, the work efficiency is the best (Ma & Zhang, 1998). When the motivation intensity is too low, students will lack the enthusiasm to participate in physical education and other activities, and work efficiency cannot be improved. When the motivation level exceeds the peak, the work efficiency will follow the students’ excessive motivation to make them in a mental state of excessive anxiety and tension, which will interfere with the normal activities of memory, thinking, and other mental processes. Therefore, in the process of youth sports teaching, physical education teachers must control the teaching difficulty and intensity of each lesson to ensure that students can digest and learn in time, and make appropriate improvements and adjustments to physical education teaching methods according to students’ learning feedback. At the same time, in the overall teaching process, we must pay attention to grasp the development law of the longitudinal movement performance of young people. When teaching, teachers can start with the easy and then the difficult. Before teaching new movements, they should design the teaching plan reasonably and do a good job in the later course planning. When teaching new classes, physical education teachers should do a good job in introducing courses, and use the methods that students like to hear and see and vivid language and action demonstrations to make students more motivated to learn, thereby stimulating students’ thirst for knowledge. In the later review class, the teaching will be divided into blocks according to the characteristics of the movement technology. Take the new teaching of the horizontal bar in high school gymnastics as an example. Now the teacher has to teach the students that one-leg pushes up on the ground to form a support-support and one-leg swing becomes a ride-stand-the rear leg swings and rotates 180 °to form a support-support and swings down. For this combination of actions, it is necessary to teach separately and in stages according to the four action parts that are naturally divided by the name of the action. Physical education teachers need to decompose the gymnastics action into four parts first. In the new teaching of the first part - single foot flip up support, this action needs to be decomposed. First, teach the movement of one foot stepping on the ground, and then teach the connection between the two hands supporting the horizontal bar after stepping on the ground. Afterwards, we will talk about the strength and essentials of the support. Finally connect the movements together, and consolidate the essentials and movement review with the students. The three parts of the following actions should also try to decompose the actions first and then integrate them into the teaching, so that it is in line with the students’ digestion of the knowledge and skills of each lesson, and it is convenient for students to absorb and understand exercises after class.

In terms of motor performance and cognition, in addition to the vertical law, there is also a horizontal law that is constantly developing based on the age of the students. In the lower grade physical education teaching of Grades 1 to 2 of elementary school, the syllabus has less requirements for students to practice. From the emphasis on discipline in class to short-distance running in track and field, supplemented by game teaching during the

period, the teaching difficulty is more difficult than that of senior grades minimum. The main reason is that students in the lower grades of elementary school have just learned pinyin and writing, and their comprehension of language and cognitive ability of new things need to be improved. Therefore, current students can only accept a relatively simple teaching level. As students grow older, they gradually enter the upper grades of elementary school, and even enter junior high school and high school. The difficulty of the physical education content that students receive will increase with the growth of their cognitive ability. At the same time, the teaching content for students will gradually increase every semester, and the combinations of movements that students learn in each class will become more complex. As the student grows older, the improvement in comprehension leads to a corresponding increase in athletic performance. Students may make some mistakes during the learning of movements in class, but the students' motor ability follows the characteristics of advancing in waves and spiraling upwards. Their overall movement performance will improve with the growth of age, the improvement of reflection in and out of class, and the increase in the number of exercises.

To sum up, there are vertical and horizontal development laws in the performance and cognition of youth physical education. Physical education teachers should fully understand the law of adolescents' movement acquisition, movement mastery, movement performance, and cognitive development in teaching, and should carry out purposeful and planned teaching according to the actual situation of students' physical, cognitive ability, teaching environment, and other aspects with guidance.

The Laws of Adolescent Psychological Development

As teenagers grow older, their mental intelligence will change and develop accordingly. In the process of physical education teaching at each school stage, physical education teachers should understand and grasp the psychological characteristics of young people in all aspects of "knowledge, emotion, intention, and action" according to the students' school stages and grades. The psychological problems and abnormal performances that arise are properly dealt with and resolved, so as to better adjust the students' psychology and allow them to develop healthily both physically and mentally.

Laws of the Development of Mental Intelligence in Adolescents in Stages

In his theory of cognitive development, Piaget put forward four stages of children's mental development. The first stage is the sensorimotor stage, and children from birth to two years old begin to interact with the surrounding environment. The second stage is the preoperational period, during which children between the ages of two and seven learn to use symbols to represent objects or events. In the third stage of concrete thinking, children between the ages of seven and 11 can use logical thinking to represent the external world, but can only represent things that are directly observed. In the fourth stage, the formal thinking period, children can represent concepts with logical thinking, and the formal thinking period is established from the age of 11 to adulthood (Lian, 2018). Therefore, physical education teachers should grasp the stage characteristics of the mental development of the teaching object before teaching, and plan the teaching progress of physical education courses and physical education technology learning in this semester according to the age, intellectual development law, and acceptable difficulty level of students.

Laws of the Development of Adolescent Attention

Through relevant psychological theories, it is found that students' attention will greatly affect their mastery of knowledge and learning effects. Coincidentally, in the process of physical education teaching, if teenagers

have and demonstrate a strong quality of attention, their learning efficiency will be greatly improved, and their comprehension and action performance will be more excellent. In psychology, the quality of attention is divided into attention stability, attention span, attention distribution, and attention transfer (Huang, 2016). If a student can concentrate on a specific object within a certain period of time, and can listen carefully in class without being distracted, it means that the student has the stability of attention. If a student can clearly perceive and recognize more observation objects in an instant, then the student has a higher attention span. In addition, the distribution of attention can help physical education teachers evaluate the ability of adolescents to equally distribute attention to current activities when performing multiple activities. In addition, in the process of physical education teaching, the teacher may transfer to a new technical action teaching after teaching an action, which requires students to have a high ability to shift attention. One object fits into another object. This requires physical education teachers to pay more attention to students' behavior in class, so as to urge students to improve their distraction shortcomings in class, so that they can better use the law of attention to help young people effectively master and acquire physical education in physical education classes.

Laws of Adolescent Emotional and Behavioral Development

During their growth and development, their mental state is also advancing with the times, and they become more mature with age. Adolescents' emotional and personality development, as an important aspect of their psychological development, also increases with their age. Primary school students are immature in mind, and in physical education classes, there are often cases of chasing and fighting and other non-compliance with classroom discipline. This requires physical education teachers to emphasize classroom discipline in the class and require students to listen carefully. In the case of rough play, appropriate punishment measures may be imposed on students, such as penalty for running one lap, penalty of five sets of rope skipping, etc. If it is serious, the class teacher and parents will be informed, and the class star rating will be downgraded. If the student corrects the mistake and does not violate the classroom discipline in the future, then the student can be rewarded with a big red flower by the physical education teacher, and will be awarded the Sports Progress Star Award at the end of the semester. In this way, students know the consequences of disrupting the normal class order in physical education class, and they will try to avoid negative effects such as punishment, actively gain the trust and praise of the teacher through their usual excellent performance, and then generate positive feedback, in order to get a big hit rewards such as flowers and certificates (Zhang, 2020).

In the junior high school stage, junior high school students gradually enter adolescence, and the most obvious characteristics are rebellion, going their own way, helplessness, and tiredness. When junior high school students enter adolescence, they may contradict their teachers and bully their classmates in physical education class. The teacher cannot directly blame and criticize the classmate after discovering it. To actively understand the inner thoughts of students, what is the incentive for students to make such rebellious behaviors? Why do students feel irritable and angry? After the teacher knows the cause of the incident and the cause of the students' rebellious behavior, he must actively mediate, and use gentle language to let the students know where they are wrong and how serious the impact is, so that the students' hearts will be shaken, and they will feel inferior and feel guilty emotions. At this time, the teacher must know how to protect the self-esteem of the students, tell the students to apologize to the other party, and not make similar mistakes in the future. At the same time, we must also tell the victim to learn to forgive each other, maintain a good relationship with all classmates, and grow and make progress together in the future. After that, the physical education teacher can provide special psychological

education to the whole class, teaching them to learn to be the masters of their emotions, to think about the consequences before doing anything, and to learn to respect others and themselves. This is called empathy in psychology. A similar situation also occurs in high school. Middle school students will face great pressure in the high school entrance examination and college entrance examination. Coupled with the unstable emotional performance in adolescence, these students are very prone to some extreme actions, and may abuse others or have hurtful behaviors. Physical education teachers must lay a solid foundation of educational psychology-related knowledge before teaching, and be psychologically prepared to deal with such situations. According to the special situation of the students, they will teach and talk with each other, try to understand the voices of the young people, and try to solve the current problems with the students together. Physical education teachers should teach students that when encountering negative emotions such as emotional instability and resentment, they must learn to work hard to calm their hearts, learn to think differently, and reduce their inner pressure. They can seek counseling from teachers and school psychological counseling. With the help of the teacher, I will face the challenges of the high school entrance examination with a cheerful attitude and confidence.

Summary

To sum up, whether in primary school or middle school, physical education teachers should help and teach young students to form a correct world outlook, outlook on life and values. It is necessary to know the laws of physical and mental development and sports acquisition of young people, and teach students carefully. While achieving excellent teaching effects and sports performance, we must also guide students to face the challenges and opportunities from the future with a positive attitude. At the same time, teachers should tell teenagers to cherish their beautiful youth and have a good learning attitude, make friends with like-mindedness, maintain the relationship with classmates, and learn to respect others and yourself. Ultimately, it will promote the common progress among young people and make them form a correct world outlook, outlook on life and values.

References

- Feng, X. (2005). *Wuhan Institute of Physical Education trial textbook physical training method*. Wuhan: Textbook Committee of Wuhan Institute of Physical Education.
- Huang, Z. (2016). *Sports psychology*. Wuhan: Huazhong University of Science and Technology Press.
- Lian, S. (2018). *A handbook of psychology*. Beijing: Beijing United Publishing Company.
- Ma, Q., & Zhang, L. (1998). *Sports psychology*. Hangzhou: Zhejiang Education Press.
- Pang, Q. (2017). Using positive feedback and negative feedback to optimize physical education classroom teaching. *Contemporary Sports Technology*, 7(11), 117-118. doi:10.16655/j.cnki.2095-2813.2017.11.117
- Tian, M. (2000). *Sports training*. Beijing: People's Sports Publishing House.
- Zhang, G. (2020). Adolescents' sports skills acquisition difficulties and physical education teaching optimization path. *Youth Research*, 26(2), 72-79. doi:10.3969/j.issn.2095-7947.2020.02.012