Research on the Ideas and Implementation Effects of Children's Aerobics Based on 3D Simulation Technology

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Abstract. Kindergarten aerobics is an important part of a child's daily life. It is an important means to comprehensively train the child's body, regulate emotions and uplift the spirit. Sports activities are the main content of children's sports. Through sports activities, children's physique can be enhanced, basic movements can be developed and good character, lively and cheerful personality, and strong will quality can be cultivated such as courage and self-confidence. In principle, the outdoor sports activities of young children should not be less than one hour in principle. The basic content of children's sports activities are basic exercise exercises, basic aerobics exercises and sports games. This article mainly discusses the idea of creating a complete set of children's aerobics based on 3D simulation technology.

Keywords: Young Children, Aerobics, Complete Set of Actions, Implementation Effect, 3D Simulation Technology

1. Introduction
Basic aerobics for young children refers to aerobics that are arranged for the development of large muscle groups for young children. Mainly develop the scapular muscles, back muscles, abdominal muscles, upper and lower limb muscles. Basic aerobics for children can promote the balanced development of children's body, cultivate good body posture, and enhance the functions of muscles, bones, ligaments and internal organs. Learn a variety of movements in different orientations, speeds, and rhythms to improve sense of orientation, speed, and rhythm. Unifying the unified actions of signals helps to foster organizational and disciplinary qualities [1].

1.1. 3D simulation technology
3D is three-dimensional graphics. Displaying 3D graphics in a computer means displaying three-dimensional graphics in a plane. Unlike in the real world, the real three-dimensional space has real distance space. The computer just looks like the real world, so the 3D graphics displayed on the computer just look like the real thing. One of the characteristics of the human eye is that it will form a three-dimensional impression if it is near and far away.
2. The overall idea of the set of action for children's aerobics
Children's aerobics is a new group of children's sports activities that integrate music, dance and basic movements. It is mainly for preschool children, with freehand movements, simple and skillful movements, and various forms. Our teachers often find that when doing "Kaki", when the music is over, the arm is always waving, and the arms are tired. In the afternoon of the middle class, there is a song "You can guess this name", feeling a bit of music. It’s so fast that sometimes I can’t keep up, as shown in Figure 1 below:

![Diagram]

**Figure 1.** The effect of aerobics on cardiopulmonary fitness

Through Figure 1, we are thinking: Is there a slight gap in our action arrangement? Or is the music we choose not suitable? This kind of problem has been haunting our minds, so we have the idea of further understanding the basic aerobics of young children. Through this exploration activity, I hope to learn more about the choices and principles of children's basic aerobics movement creation, and to understand some simple children's aerobics programming knowledge.

3. Classification of basic aerobics for children

3.1. Freehand exercises
Listen to the teacher's password or broadcast aerobics exercises by empty hands. No equipment is required, it is not limited by the field equipment and has the value of full exercise. The order of the freehand exercises: upper limb movements - chest movements - lower limb movements - waist movements - abdominal back movements - jumping movements - finishing movements. The meaning of the order of the freehand exercise is that from the beginning of the upper limb movement, the amount of activity is gradually increased, and the climax is reached during the jumping movement. Upper limb movement and stretching are ideal habits for the human body to move from static to dynamic.

3.2. Imitation operations
The imitative exercise is based on the knowledge of life and social nature familiar to young children, and is manipulated by visualized movements. The characteristics are from life, simple movements, vivid images, and with a catchy song, suitable for small classes. Light equipment operation refers to the operation of children's hand-held relatively light equipment such as cans, small flowers, small flags, paper sticks, and auxiliary equipment such as chairs and stools. The characteristics are that the instruments vary in variety and interest, and each has its own characteristics due to different instruments. Imitating exercises are a variety of activities, adult labor, military training, or animal movements that are selected in daily life.

3.3. Light equipment operation

On the basis of freehand exercise, take some light equipment to do exercises. —— the instruments are often: ropes, dumbbells, garlands, sticks, or chairs; can improve the interest and motivation of the exercise[4]. Light equipment operation types: red flag exercise, garland exercise, dumbbell exercise, stick exercise, tambourine exercise, ball exercise, scarf operation, three bath exercise. Light equipment operation refers to the operation of children's hand-held relatively light equipment such as cans, small flowers, small flags, paper sticks, and auxiliary equipment such as chairs and stools. The characteristics are that the instruments vary in variety and interest, and each has its own characteristics due to different instruments.

4. Problems in the arrangement of basic aerobics in my garden

4.1. Feedback of each grade group teacher questionnaire

First of all, the normative music and movement of music and movement are the two basic parts of aerobics. Music drives the movement and directly affects the accuracy of the movement. Therefore, the music must be clear and lively, and the rhythm is strong, making it easy for young children to hear the beat. The action requirements are easy to learn and accurate. Grasp the speed and intensity of the action, pay attention to the actual effect of the exercise, and prevent the flow of the form. At the same time, the music and movement must conform to the age characteristics of the child, and it must be suitable for the child, and should not be adult[5].

| Independent variable          | Body composition |          |
|------------------------------|------------------|----------|
| Exercise time                | β value          | T value  |
|                              | 0.230            | 3.109    |
| Number of exercises          | 0.159            | 1.921    |
| Exercise intensity           | −0.036           | −0.522   |
| F value                      |                  | 7.094    |
| R2 value                     |                  | 0.089    |

Table 1. Estimation of body fitness for children's aerobics

| Independent variable          | Cardiopulmonary fitness |
|------------------------------|--------------------------|
|                              |                          |
|                              |                          |

Table 2. Estimated values of cardiopulmonary fitness in children
As shown in Table 1-3 above, the scientific exercise of a comprehensive exercise should be fully exercised in every part of the body. Specifically, it should allow the child's head, shoulders, upper (lower) limbs, chest, abdomen (back), waist, each muscle, each joint, etc. to be fully exercised.

4.2. The variability of aerobics content and form
Kindergarten aerobics should avoid day after day, year after year, long-term adjustment, rigid, formatted situation, so easy to make children bored mood, in general, after a period of time (1-2 months) The exercise should be replaced, at least with a small change, for example: you can change the use of different instruments, change the formation combination or replace the game content after the exercise, you can also introduce the sports activities and songs and dances that children usually like. Come to aerobics.

5. Conclusion
Children's aerobics is a new group of children's sports activities that integrate music, dance and basic movements. It is mainly for preschool children, with freehand movements, simple and skillful movements, and various forms. Mainly develop the scapular muscles, back muscles, abdominal muscles, and upper and lower limb muscles. Basic aerobics for children can promote the balanced development of children's body, cultivate good body posture, and enhance the functions of muscles, bones, ligaments and internal organs. Learn a variety of movements in different orientations, speeds, and rhythms to improve sense of orientation, speed, and rhythm. Unifying the unified actions of signals helps to foster organizational and disciplinary qualities. The aerobics for children created by
3D simulation technology can make children feel the three-dimensional effect, and can stimulate children's interest in exercise, so as to achieve the purpose of children's exercise.

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