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SWOT analysis and teaching strategy of aerobics in college physical education classroom

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Abstract: This study delves into the strengths, weaknesses, opportunities, and threats of aerobics through SWOT analysis. Aerobics offers a comprehensive workout, enhancing students' physical fitness and promoting overall well-being. Nevertheless, challenges include a lack of awareness among students and potential issues such as insufficient sports skills. Opportunities arise in college physical education courses, serving as an excellent platform for fostering students' holistic development. However, aerobics faces threats in teaching, such as time constraints and varying student interests. Addressing the actual teaching scenario, corresponding strategies are proposed. Firstly, there is a need to strengthen the promotion and education of aerobics. Secondly, employing a hierarchical, step-by-step teaching approach can elevate students' motor skills. Additionally, designing engaging and challenging aerobics courses aligned with the characteristics of college physical education helps ignite students' enthusiasm. Lastly, teachers should flexibly adjust content and methods to ensure effective calisthenics teaching. Through SWOT analysis and the discussion of teaching strategies, this paper aims to offer valuable insights for the aerobics teaching in college physical education classrooms. The goal is to promote students' all-round development and enhance the overall quality of physical education.

Key words: college sports; aerobics; SWOT; teaching strategy

1. Introduction

College life is a critical period of individual development, and physical exercise is crucial to maintaining the overall health of students (Keating et al., 2005). Research shows that physical activity helps improve academic performance, cognitive function and learning outcomes (Haverkamp et al., 2020). Physical education programs provide opportunities for students to bond with their peers and develop a sense of teamwork (Beni et al., 2017). The improvement of health awareness makes fitness activities become more and more concerned by the public, and aerobics is popular as a kind of whole-body exercise. Aerobics is a combination of aerobic exercise and strength training, suitable for improving physical fitness and forming a good shape (Permadi, 2019). In order to meet the diversified sports needs of students, the introduction of calisthenics can provide novel and comprehensive exercise methods. The purpose of this study is to explore the strengths, weaknesses, opportunities and threats of calisthenics in college physical education through SWOT analysis and teaching strategies, so as to improve teaching quality and student participation. The research question is to explore the challenges faced in the implementation of calisthenics in college physical education classrooms and how to optimize teaching methods. To understand the strengths (S), weaknesses (W),

opportunities (O) and threats (T) of aerobics in college physical education classrooms, and to provide theoretical basis for teaching improvement and basis for formulating targeted teaching strategies. This paper discusses how to optimize the teaching strategy of aerobics in order to stimulate students' interest and improve the learning effect. Through research to provide effective guidance for the development of college physical education curriculum, to promote students in the overall development of physical exercise.

2. Theoretical framework

2.1. The role of aerobics in college physical education classes

Physical health promotion, research points out that the aerobic exercise and strength training characteristics of aerobics can effectively improve students' cardiopulmonary function, increase muscle strength, improve physical flexibility, and have a positive impact on physical health in the long term. Training of coordination and flexibility, research shows that students who often participate in aerobics are more prominent in coordination and flexibility than students in other sport (Han et al., 2018). Teamwork and sociability as a form of collective performance, aerobics emphasizes teamwork and collaborative effort (McEwan & Beauchamp, 2014). In the process of co-creating and completing actions, students develop a spirit of teamwork and enhance communication and social relations between each other. Adapt to the global fitness trend, with the rise of the global fitness boom, relevant studies have pointed out that college students are more willing to choose fitness programs that can integrate the elements of the trend, and aerobics is in line with this trend, injecting new vitality into the university sports classroom. Diversity and personalized exercise plan, the flexibility of aerobics movement allows teachers to develop personalized exercise plans according to the individual differences of students to meet the fitness needs of different students.

Subject integration and comprehensive quality training, the characteristics of aerobics make it able to promote the integration of disciplines, combining music, dance, art and other disciplinary elements. This not only makes the physical education curriculum more comprehensive and interesting, but also helps students develop creativity, aesthetics and expression skills in sports (Bailey et al., 2009). The relationship between emotional attitude and academic performance, research finds that students who actively participate in aerobics often show more positive emotional attitude, which has a positive effect on relieving academic pressure and improving academic performance.

Interdisciplinary teaching and comprehensive quality training, the introduction of interdisciplinary teaching elements in the teaching of aerobics, such as psychology, sports science, etc., is helpful to cultivate students' comprehensive quality more comprehensively. This interdisciplinary teaching mode helps students to integrate and apply knowledge and improve their comprehensive quality in different fields. Teaching innovation and student participation. Innovative teaching methods, such as the introduction of modern technology, can better attract students' attention and improve their participation (Al Farsi et al., 2021). Aerobics plays multiple roles in college physical education classes, not only as a way of exercise, but also as an

effective means to promote all-round quality development and enhance teamwork and social ability.

2.2. The impact of global fitness trends on college sports

The popularity of fitness craze, worldwide, fitness craze spread rapidly, become a part of modern life cannot be ignored. College students, as the representative of young people, are more actively involved in this fitness boom. Literature points out that the popularity of fitness craze has not only improved students' awareness of fitness, but also prompted university physical education courses to pay more attention to the health development of the whole body. Diversified fitness methods, with the continuous update of fitness concept, more and more fitness methods emerge, such as high intensity interval training (HIIT), yoga, Pilates and so on. University physical education programs around the world are gradually introducing these diverse forms of fitness to meet the different exercise needs and interests of students. The promotion role of social media on fitness, the wide application of social media in the world, has accelerated the spread of fitness information (Zhang and Centola, 2019). College students are exposed to various fitness trends through social media, thus becoming more actively involved in physical exercise. With the development of globalization, the design of college physical education courses tends to be more international (King and King, 2010). The school tends to introduce sports from different cultural backgrounds to meet the global demand for diverse physical exercise. To improve students' physical and mental health, the global fitness trend emphasizes comprehensive physical health, including the comprehensive cultivation of physical and mental health (Kolbe, 2019). In order to better meet the needs of students' all-round development, the university physical education curriculum gradually integrates the elements that pay attention to individual development and mental health into physical education teaching (An et al., 2022). Global fitness trends have had a positive impact on college sports, driving innovation and development of physical education programs.

2.3. Literature review of teaching strategies and methods

It is generally believed in the literature that adopting stratified teaching method is an effective strategy to promote aerobics in college physical education classroom. Stratified teaching method takes full account of the individual differences of students and teaches in groups so that students can learn in a situation suitable for their own level (Chen and Wang, 2021). Personalized instruction and feedback Personalized instruction and timely feedback are widely used in college physical education classrooms. By understanding students' individual differences, instructors are able to tailor an exercise program to each student and provide real-time feedback during the learning process. The research shows that this personalized teaching method helps to improve students' learning interest and learning effect (Zhang et al., 2020).

The application of innovative teaching methods, the introduction of innovative teaching methods is a way to improve the effect of aerobics in college physical education courses (Bullo et al., 2015). For example, the introduction of musical elements, dance movements, etc., can make the course more interesting and

stimulate students' interest and enthusiasm. The teaching measures that pay attention to the prevention of sports injury, high intensity aerobics exercise may be accompanied with a certain risk of sports injury. Scientific and reasonable warm-up and stretching methods, correct movement skills and other teaching measures are emphasized in the literature as important means to prevent sports injuries (Goossens et al., 2019). In recent years, teaching innovation by means of scientific and technological means has become a trend. The development of calisthenics APP, the use of virtual reality technology to simulate training methods, to provide students with a more intuitive and vivid learning experience (Zaletel et al., 2013). By adopting stratified teaching method, personalized guidance, innovative teaching methods and teaching measures focusing on the prevention of sports injuries, the university physical education classroom can better promote the implementation of aerobics.

3. Results

3.1. Strengths of aerobics (S)

Promote good health. As a kind of systemic and aerobic exercise, aerobics can effectively improve students' cardiopulmonary function, enhance physical strength, and promote the normal operation of metabolism. By participating in calisthenics, students are not only able to improve the function of the circulatory and respiratory systems, but also help maintain appropriate body weight and enhance the function of the immune system. Studies have shown that regular aerobics exercises can reduce the risk of cardiovascular disease, obesity and diabetes, providing students with overall physical health protection.

Improve coordination and flexibility. The movement design of calisthenics pays attention to the improvement of coordination and flexibility. By practicing carefully designed movements, students can gradually increase muscle coordination and improve flexibility and flexibility of the body (Symonik et al., 2018). This is very beneficial for improving the student's body posture, reducing muscle discomfort and improving physical function. Studies have shown that students who regularly participate in aerobics perform better than non-participants in terms of coordination and flexibility, which has a positive impact on flexibility in daily life and exercise.

Cultivate team spirit. Aerobics is usually a group activity that requires team members to work together to complete complex sequences of movements. Through common exercises and performances, students develop teamwork and coordination skills. They learn to listen to their coaches and teammates and work together to complete difficult moves, thus building mutual trust and understanding. This experience of teamwork is not only reflected in the sport of aerobics, but can also have a positive impact on students' daily lives and careers (Dolci et al., 2020).

As a comprehensive physical activity, aerobics can not only promote students' physical health, but also cultivate students' comprehensive quality in coordination, flexibility and teamwork.

3.2. Weaknesses of aerobics (W)

Requires a high level of physical fitness. The complexity and high intensity of aerobics exercise put forward certain requirements on the physical fitness level of participants. Students need to have some cardiorespiratory endurance, muscle strength and flexibility to complete some of the more complex movements. For beginners or students with poor physical ability, the intensity of the exercise may feel too much, resulting in fatigue and discomfort. This may be a barrier to participation for some students with lower physical levels, requiring moderate adjustment and personalized training plans (Garnham et al., 2001).

May result in sports injuries. High intensity aerobics exercises, especially in the absence of proper instruction or unregulated situations, may increase the risk of sports injuries. The wrong movement technique, improper intensity or frequency of training can lead to muscle, joint or soft tissue injury. Some studies have pointed out that participants are more prone to sports injuries, especially if they are not guided by a professional coach, which requires enhanced monitoring of athletes and safety during training.

Some students may lack interest. The sequence of movements in an aerobics exercise is usually fixed and established, and for some students, this form may be relatively one-dimensional. Some students may feel a lack of interest, especially if there are no new elements or means of stimulating interest such as music. Lack of interest can lead to a decline in student participation in calisthenics, which can affect the effectiveness of the exercise. Therefore, in order to increase the participation of students, teachers need to flexibly use teaching methods to increase the interest of the course.

Although aerobics has obvious advantages in improving physical fitness level, exercising body coordination and flexibility, it needs to face disadvantages such as differences in physical fitness level of some students, sports injury risk and lack of interest. Through scientific physical tests, reasonable teaching plans and methods to stimulate students' interest, we can reduce the influence of these disadvantages on aerobics to some extent.

3.3. Opportunities for aerobics (O)

Benefit from the global fitness craze. The global fitness boom has provided a wide range of opportunities for aerobics. With the increasing attention to a healthy lifestyle, fitness has become a fashion and social trend. With its comprehensive and interesting characteristics, aerobics can attract more students to participate in it. By integrating calisthenics with the global fitness craze in the university physical education classroom, students' interest in and active participation in the sport can be increased.

Provide networking opportunities. Aerobics is usually a group performed sport, which provides students with the opportunity to interact and socialize with their peers. In the process of training and performing together, students are able to build close friendships, enhance teamwork and trust between each other. In addition, the communication among students can be further promoted by organizing competitions, celebrations and other ways to form a healthy social network.

You can customize a personalized exercise plan. The flexibility of the aerobics movement allows the instructor to develop a personalized exercise plan according to the individual differences of the students. By understanding the students' physical fitness level, health status and interests, the appropriate exercise program can be tailored to them. This personalized teaching method helps to stimulate students' interest, make them more active in the aerobics movement, and be able to enjoy the fun of exercise better.

3.4. Threats of aerobics (T)

Competition in other sports. Aerobics faces competition from various other sports in college sports classes. Students may be attracted to traditional sports such as football, basketball, track and field when choosing sports activities, which makes aerobics need to be more attractive and unique to stand out in the fierce competition for sports choices.

Society's aesthetic pressure on body shape. Society's aesthetic concept of body shape may have a negative impact on students' choice of aerobics. In some cultures, the standard of beauty for body shape may be more lean or muscular, while the aerobics movement emphasizes body coordination and flexibility. Students may be influenced by social aesthetics and choose the way of exercise that is more in line with mainstream aesthetic standards, while ignoring the value of aerobics.

Busy academic schedules may limit participation. College students often face heavy academic commitments and schedules, which may limit the time they spend participating in sports. As a group performance form of sport, aerobics may require a relatively long training time and high participation. Busy academic schedules may make students more inclined to choose more convenient and flexible forms of exercise, such as running and gym exercise.

4. Discussion on teaching strategies

4.1. Discussion on teaching strategies

Stratified teaching is an effective teaching strategy, which is especially suitable for aerobics in college physical education classroom. This strategy divides students into groups of different levels according to factors such as physical level, skill level or learning speed, so that each group can learn in a situation suitable for its own level. In the teaching of calisthenics, this means that there can be movements of different difficulty and complexity for beginners and advanced students to meet the needs of different students. In the paper, the advantages of stratified teaching in improving students' learning effect and participation can be expounded by citing relevant research results, and how to flexibly adjust the teaching content and difficulty according to the actual situation of students can be mentioned (Naik, 2023).

Personalized instruction is a teaching strategy that provides customized teaching according to the individual differences of each student. In aerobics, personalized instruction can include an understanding of the student's physical fitness level, targeted training plan design, and real-time personalized feedback. By understanding students' individual differences, instructors can better help them

overcome difficulties, stimulate interest in learning, and improve the accuracy of movements. In the paper, the successful cases of personalized teaching in physical education courses can be cited to explain in detail how personalized guidance can improve students' learning experience and sports effect, and how to adjust the guidance strategy to meet the needs of different students.

Through the detailed explanation of these two teaching strategies, we can combine related research and empirical data to illustrate their practical application effects in aerobics. It emphasizes how personalized instruction and stratified teaching can better adapt to students of different levels, so as to improve the overall teaching effect.

4.2. Promote student interest and engagement

Innovative teaching methods are particularly important in college physical education classes, especially for activities such as aerobics that need to attract students' interest. Innovation can be reflected in teaching content, teaching means and teaching environment. In this paper, some innovative teaching methods can be elaborated, such as using modern scientific and technological means (virtual reality technology, aerobics APP, etc.) to carry out interactive teaching, introducing gamification elements to improve students' learning interest, or stimulating students' subject interest through case teaching, role playing and other forms. By citing relevant studies and case studies, it highlights how innovative teaching methods can play a positive role in increasing student interest and engagement (Adedeji et al., 2020). Introduce music and dance elements. The combination of aerobics with music and dance can make the whole exercise more interesting and artistic, so as to better attract students' interest. The choice of music and rhythm can make it easier for students to get involved in the movement, while the introduction of dance elements can increase the flexibility and artistry of the movement. In the paper, we can cite research results and practical cases to illustrate the positive role of music and dance elements in improving student participation and movement effects. At the same time, it emphasizes how to choose appropriate music and dance elements according to students' interests and cultural background to better stimulate students' enthusiasm.

Through the detailed explanation of these two teaching strategies to promote student interest and engagement, the paper can be made more readable and persuasive.

4.3. Teaching measures to prevent sports injury

Reasonable warm-up and stretching are the key teaching measures to prevent aerobics injury. In college physical education classes, teachers need to design scientific and effective warm-up activities, including aerobic exercises and joint activities, to increase students' body temperature, promote blood circulation and improve muscle elasticity. After warming up, proper stretching can improve the flexibility of muscles and joints and reduce the resistance during exercise, thereby reducing the potential risk of sports injuries. In teaching, the principles of reasonable warm-up and stretching can be explained in detail by referring to the relevant theories and practical experience of exercise physiology, and how to effectively

implement these teaching measures in the teaching of college sports aerobics (Behm et al., 2021).

The emphasis on correct movement techniques is another important teaching measure to help prevent sports injuries in aerobics. The instructor needs to demonstrate and explain the movements of the students in detail, emphasizing the correct body posture, body movements and breathing patterns. Through timely personalized feedback, students are corrected for possible wrong movements and ensure that they maintain correct posture during exercise. In the teaching, the theory of movement and the principle of educational psychology can be combined to explain in detail how to emphasize the correct movement skills in the teaching of aerobics, improve the accuracy of students' movements, so as to reduce the incidence of sports injuries.

Through the detailed elaboration of these two teaching measures to prevent sports injuries, we can provide specific operational guidelines for teachers, and emphasize their key role in improving student safety and sports effect. This paper model is helpful for readers to deeply understand how to prevent sports injury scientifically and effectively in college sports aerobics teaching.

4.4. Using scientific and technological means to improve teaching effect

The development of calisthenics APP is an advanced and innovative teaching measure, which can greatly improve the teaching effect of college sports calisthenics. The APP can include features such as learning videos, real-time guidance, personalized training plans and feedback systems. Students can obtain calisthenics learning resources anytime and anywhere through the APP, and learn flexibly according to personal needs and progress.

5. Conclusion

5.1. Summarize the findings of SWOT analysis

In the SWOT analysis, a comprehensive evaluation of the aerobics movement in the university physical education classroom is carried out. The advantages of the aerobics exercise are found to promote physical fitness, improve coordination and flexibility, and develop a team spirit. However, there are disadvantages that require a high level of physical fitness, can lead to sports injuries, and some students may lack interest. In terms of opportunities, calisthenics can benefit from the global fitness boom, provide networking opportunities, and allow for personalised exercise plans. However, threats include competition from other sports, societal aesthetic pressures on body shape, and busy academic schedules that may limit participation.

5.2. Put forward teaching strategy suggestion and reflection

Based on the findings of SWOT analysis, the following teaching strategies are proposed: Personalized teaching: Through stratified teaching and personalized guidance, to adapt to different levels of students and improve participation. Innovative teaching methods: The introduction of innovative teaching methods, such as technology and interactive teaching, to enhance student interest and improve

learning outcomes. Music and dance elements: Introduce music and dance elements into the curriculum to increase the interest and increase the active participation of students. Prevention of sports injuries: Reduce the risk of sports injuries through reasonable warm-up and stretching, emphasizing correct movement techniques and other measures. The use of scientific and technological means: the development of calisthenics APP and the use of virtual reality technology to improve the teaching effect and enhance the learning experience of students.

5.3. Critical reflection on the results

The methods of using SWOT analysis and teaching strategies are examined to discuss whether there are other more effective methods to more comprehensively evaluate the status of aerobics in college physical education. Explore the limitations of the study, including sample selection, geographical limitations, etc., in order to better understand the general applicability of the study.

For the proposed teaching strategy, whether there are implementation problems, and how these problems affect the teaching effect. Were student feedback collected to get a more complete picture of their perceptions of the aerobics curriculum, as well as to make suggestions and improvements. Time and discuss the time and resource constraints that may be faced in the study, and the possible impact of these factors on the results.

5.4. Outlook for future research

Further study and formulate the specific implementation effects of aerobics APP and virtual reality technology to provide more scientific and technological support for future teaching. This paper discusses the influence of sociocultural factors such as aesthetic concept and body shape concept on students' attitude and interest in participating in aerobics, so as to provide a deeper understanding for teaching. A long-term follow-up study was conducted to evaluate the influence of the proposed teaching strategies on students' long-term participation and physical fitness, and to provide a basis for the sustainable development of university sports aerobics courses. This paper makes a comparative study on the teaching of college sports aerobics under different cultural backgrounds, probes into the cross-cultural applicability of the teaching model, and provides useful experience for the teaching of students with different backgrounds.

These perspectives will help to deepen the understanding of college sports aerobics teaching, and provide more research directions and inspirations for improving student participation, promoting physical health and promoting the development of this field.

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