Research on Sports System Based on The Concept of Green Environmental Protection

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Abstract. The thesis uses literature and questionnaire research methods to discuss a series of environmental problems caused by outdoor sports and the impact of environmental pollution on sports. Simultaneously, based on the concept of green environmental protection, corresponding environmental protection countermeasures are proposed to achieve a dynamic balance between sports and the natural environment, that is, to achieve veritable green sports.

Keywords: Green sports, environmental protection, sports, environmental pollution.

1. Introduction
In recent years, under the premise of increasing land resources shortage in big cities, the shortage of urban ecological space has caused the shortage of citizens' sports venues to become more apparent. As one of the public introductory education courses, outdoor sports courses in colleges and universities have a high penetration rate. Of course, this type appears in different forms of content, such as wildlife survival, outdoor development, orienteering, mountaineering, etc. Its most prominent feature is the teaching environment, that is, the outdoor natural environment is used as the course teaching environment. During the learning process, students can have close contact with nature and interact directly. Therefore, relying on the characteristics of outdoor sports outdoor teaching environment, rich and diverse outdoor teaching content, and available teaching methods, the concept of "green education" is incorporated into it, and a good "green education" platform is built. It can provide college students, especially non-environmental majors, with the opportunity to take compulsory or elective environmental protection education so that they can systematically learn and master environmental scientific knowledge, and promote college students to receive a full range of environmental protection education and environmental awareness training [1]. It is of great significance for college students to comprehensively improve their green qualities.

2. Research objects and methods

2.1. Research object
It is composed of the second-year outdoor sports optional classes for undergraduates in our province and city (including optional courses such as orientation, wildlife survival, development, etc.). A total of 279 students in 9 classes are the research objects.
2.1.1. Expert interview method. Through on-site visits and online consultations, during 2018-2019, we used participation in sports academic conferences to analyze the theoretical basis, operating procedures, evaluation indicators, and other related content of integrating "green education" into outdoor sports courses in colleges and universities. Experts, scholars, leaders, etc. discussed and communicated, listened to their opinions and suggestions and determined and revised the experimental research content and experimental design related to this research [2].

2.1.2. Questionnaire survey method. We have designed two sets of questionnaires. A total of 107 questionnaires were distributed to experts and scholars; 94 were recovered, with a recovery rate of 87.85%, of which 94 were valid questionnaires, with an effective rate of 94.68%. Distribute statistics of survey personnel (Table 1). A total of 534 questionnaires were distributed to students before and after the experiment, and 534 were recovered, with a recovery rate of 100%, of which 526 were valid questionnaires, with an effective rate of 98.50%. The questionnaire will be implemented from October 2018 to December 2019. Validity test. After the design of the questionnaire was completed, 13 experts related to the subject conducted a validity test and conducted three rounds of opinion consultation according to the Delphi method's requirements. After summarizing the opinions and suggestions of experts, the questionnaire was revised and supplemented. The expert questionnaire's validity coefficient is 0.808, and the validity coefficient of the student questionnaire is 0.753. From the perspective of sociological questionnaires, the structural validity of 0.70 is quite in line with measurement requirements, so the two questionnaires belong to the range of efficiency. The Delphi method is introduced as follows:

The Delphi method uses the form of questionnaires to design actual questionnaires and consult experts. According to the first consultation results, the statistical variables, such as the mean and variance of each expert's opinions on the consultation questions, are calculated to measure the degree of dispersion and similarity of expert opinions. The statistical variables are fed back to the experts, and the second round of consultation is conducted [3]. After several rounds of consultation, the results obtained are analyzed. If the various experts' opinions are basically consistent, it indicates that the results are very convergent, and the opinions of the experts can finally express the results of the consultation questions. The relevant formula is as follows:

\[
E = \frac{1}{m} \sum_{i=1}^{m} X_i
\]  
\[
\delta = \sqrt{\frac{1}{m-1} \sum_{i=1}^{m} \left( X_i - E \right)^2}
\]

Where \(m\) is the number of experts; \(X_i\) is the score of the \(i\) expert; \(E\) is the mean value of a particular factor; \(\delta\) is the standard deviation of a particular factor. The mean value reflects each expert's overall opinion tendency on the selection of factor factors; the standard deviation reflects the degree of agreement among experts. The smaller the standard deviation, the smaller the dispersion of experts' opinions, and the higher the consistency.

| Colleges total people | Director other | Professor and associate professor other |
|-----------------------|----------------|----------------------------------------|
| 63                    | 107 (67.2%)    | 29 (32.8%)                             |
|                       |                | 84 (72.4%)                             |
|                       |                | 23 (27.6%)                             |

2.1.3. Teaching experiment method. The whole class was randomly grouped, with 279 students in 9 classes in the experimental group and 255 students in 8 classes in the control group. The experimental
group was taught according to the designed physical education model of "green education," and the control group was taught according to the traditional teaching model. The entire teaching experiment was carried out from September 2018 to July 2019.

2.2. Result analysis

2.2.1. The design and implementation of the "green education" teaching model integrated into outdoor sports courses in colleges and universities are based on the relevant teaching goal system of environmental courses at home and abroad. After research and discussion by the research group, the teaching goals of "green education" in outdoor sports courses have been formulated, and after analyzing the results of the expert questionnaire survey, most experts believe that this teaching model and goal are practical and in line with the curriculum teaching standards. As shown in Figure 1.

![Figure 1. Teaching objectives of "green education" in outdoor sports courses](image)

The integration of the "green education" teaching model paradigm into the outdoor sports curriculum is to optimize the combination of teaching resources needed to "promote and realize the environmental protection and sustainable development goals of college students," and select and implement it in a combination of inside and outside classes. This model fully considers the diversity of green education goals to get various forms of green quality education in the course and life outside the course. The course will also be assessed around 5 specific goals, and 20% will be included in the semester's physical education results. Therefore, integrating the "green education" teaching model into the outdoor sports curriculum plays a role of supervision and incentive mechanism to a certain extent. As shown in picture 2.

![Figure 2. Incorporating "green education" teaching mode into outdoor sports courses](image)
2.2.2. **Analysis of research results.** An analysis of the experimental effects of the "green education" teaching model incorporated into the outdoor sports curriculum, after two academic years and two teaching practice rounds, individual phased results have been achieved. The results of a questionnaire survey on the achievement of the green education goals of the experimental class and the control class before and after the "green education model" experiment show that the students of the experimental class are in environmental awareness, basic environmental knowledge, attitudes towards the environment, improvement of environmental skills, and environmental protection behaviors in 5 green education. The achievement of the goal is significantly better than that of the control class. There is no significant change in the control class, and the experimental class's teaching effect is significant [4]. Simultaneously, through teacher evaluation, student self-evaluation, and student mutual evaluation, the green quality evaluation results show that the experimental class students are green after the teaching experiment. The quality has been significantly improved, and there is a deeper understanding of "green education." The survey results show that integrating "green education" teaching mode in outdoor sports courses has a useful role in promoting the comprehensive improvement of college students' green quality. Students' satisfaction rate with the new teaching model is relatively high, and the satisfaction with the entire academic year is also high. Still, the degree of satisfaction with the division of teaching content, teaching methods, and class methods are not very satisfactory, and research should be strengthened in this area in the future. Further research is needed in teaching evaluation.

3. **Discussion**

3.1. **Enhance people's environmental awareness**

One of the fundamental reasons for a series of environmental problems in our lives is that people's awareness of environmental protection is weak. It is necessary to strengthen the education of environmental issues in school physical education to realize the severe harm of destroying the environment and the importance of protecting the environment. This not only has significant economic benefits but also has important ecological and social benefits. Now, news media has penetrated into all areas of people's lives and has a particular guiding role in people's ideas [5]. Therefore, news media such as newspapers, radio, television, and the Internet must vigorously promote the "green concept" to people, introduce the means and measures of environmental protection to people, and set off the upsurge of protecting the environment in the whole society. For example, among the 30 measures formulated by Beijing's Green Olympics plan, there are public environmental awareness education contents. There are also 10 environmental protection tasks in the plan that the public and everyone in society can participate in, such as building green communities, green homes, and green schools; carrying out mass garbage sorting; protecting wild animals; planting trees, and afforestation.

3.2. **Entertaining and learning, combining inside and outside classes, and carrying out various environmental protection theme activities**

Through the teaching practice of outdoor sports courses, college students will be inspired to produce ecological, environmental awareness and let college students feel nature, touch nature, and love nature while integrating into nature. While teaching the necessary theoretical knowledge related to the environment, teachers should also be good at taking advantage of some environmental protection topics that college students are actually facing, and actively organize college students to conduct discussions or debates about ecological, environmental protection so that college students can understand it in their tongues [6]. The true meaning of environmental protection; to enable students to truly feel the seriousness of environmental pollution and the necessity of environmental protection in a variety of practical activities realize that people's healthy life is closely related to nature, to enhance the effectiveness and feasibility of environmental protection education Persistent.

Outside the classroom, with teachers as the guide and the students with higher environmental professional or green quality as the backbone, the college students' green education volunteer association is established so that students' environmental awareness and responsibility for
environmental protection are gradually enhanced in green activities [7]. By organizing college students to conduct activities such as the Tianmu River Source Tour and the Ancient Road Tour on holidays, the will and sentiments of college students are cultivated, tranquility and unrestrainedness are tempered, profound and broad training, and deep emotions between college students and nature are cultivated in the exchanges between humanities and nature; through the community Promote activities such as the abolition of disposable chopsticks, waste recycling, garbage sorting, and energy and water conservation activities. On "World Environment Day," Arbor Day, Water Saving Day, and Earth Day, students are strongly encouraged to carry out corresponding thematic publicity and practice Activities, carry out good theme education, cultivate the sense of mission of college students to protect the environment; through the development of "protect the environment, I am healthy." reading essay competition; enhance the exchange and learning of environmental protection knowledge and skills of college students; through the establishment of environmental protection theme website, Let college students participate and maintain together, establish a network environmental protection platform that promotes environmental protection externally, and promotes mutual learning and exchanges internally so that college students can get an in-depth education in this series of colorful environmental theme education activities.

3.3. Connect with reality and carry out colorful situational education
To realize the harmony between man and nature, it is necessary to carry out extensive and useful environmental education to truly understand the complexity and seriousness of the environment and environmental problems from the ideological level, and fully understand the economic, political, and ecological environment in modern society. The interdependence between humans, the in-depth understanding of the inter-relationship between population, resources, ecological environment and sustainable development, and then establish environmental awareness and a sustainable world outlook in society, so that human behavior consciously harmonizes with nature. This is the fundamental way to solve environmental problems, and it is also a new subject and goal facing education. Outdoor sports teachers do an excellent job in teaching college students' ecological, environmental protection theory and common sense, and at the same time, use the characteristics of outdoor sports teaching environment scientifically and rationally. While college students are in close contact and interaction with nature, they can connect with reality and use situational teaching. Environmental pollution phenomena, destructive behaviors that damage the environment, low-carbon, energy-saving, and environmental protection behaviors are analyzed as actual cases, and education on environmental protection topics is launched. In the imperceptibility, it is feasible for students to gradually learn and master environmental protection knowledge and develop environmental protection concepts in their thoughts to guide them to form good environmental behaviors.

4. Conclusions
Outdoor sports will bring a series of adverse effects to the natural environment; environmental problems such as air pollution, water pollution, and noise pollution will affect human beings' normal physiological and psychological functions, thus hindering the successful realization of green sports. The development of civilization and society's progress requires mankind to take adequate measures to solve the green movement's environmental problems. Therefore, it is necessary to call on politicians and all sectors of society to pay attention to environmental protection, improve people's quality, enhance people's environmental awareness, formulate environmental protection supervision mechanisms, increase scientific and technological environmental protection, and achieve coordination and balance between man and the natural environment. The green movement can be truly realized.
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