

LETTER TO THE EDITOR

The Influence of Ecological Environment Quality on Promoting Outdoor Rock Climbing

Haijun Tang*

School of Physical Education, Hunan University of Science and Technology, Xiangtan 411201, China

*Email: ly1342218648@163.com

In order to improve the popularity of outdoor rock climbing, the factors affecting the ecological environment quality in outdoor climbing sports are analyzed and studied. Questionnaires and R-factor analysis are used. The R-type factor analysis is used for the processing of the questionnaire. According to the same characteristics of the variables with higher load factors of the influencing factors of ecological environment quality, the analysis and research on the three influencing factors of the ecological environment quality in promotion of outdoor climbing sports are clearly put forward. The three factors loads of ecological environment quality are given, and the influence of three ecological environmental quality factors on the promotion of outdoor rock climbing is analyzed in detail. Reasonable suggestions have been given to improve the promotion of outdoor rock climbing.

Ecological environment quality; outdoor rock climbing; R-type factor analysis; influencing factor

1 Introduction

With the development of social economy, people are paying more and more attention to healthy and leisure lifestyles. Outdoor sports that combine leisure, fitness and entertainment are favored by tourists. Domestic scholars have different definitions of outdoor sports, but they have basically formed a consensus on their characteristics. Outdoor sports take the natural environment as the venue, reflecting the characteristics of different places and adventure. Participants are directly involved in outdoor sports, rather than indirect forms of participation such as viewing and appreciation. Outdoor sports emphasize the newness of the project, that is, the relatively new and fashionable sports in a period. Domestic scholars have divided it into two categories, broad and narrow. The generalized outdoor sports are outdoor sports, which cover almost all sports, such as outdoor balls, horse riding, archery, swimming, water sports and other major categories (Hussain et al. 2019). Narrow outdoor sports refer to a group of sports with an expedition or expedition that takes the natural environment as a venue (non-dedicated venue). Outdoor sports include mountain outdoor sports, water outdoor sports and aerial outdoor sports. Mountain outdoor sports include rock climbing, mountain climbing, hiking, mountain crossing, camping, mountain biking, mountain cross-country, caving, skiing, ice climbing, horse riding and more. Water outdoor sports include river rafting, rafting, desert island survival, canoeing and more. Aerial outdoor sports include wing gliding, hot air balloons and more.

As a kind of modern sports culture, outdoor rock climbing is developing at an amazing speed with its unique health concept. This new rise in outdoor sports makes the participating college students more youthful (Huang et al. 2019). For outdoor sports, Shandong Province is a group of teams that were studied earlier, and most of its

research is about outdoor sports training and comprehensive theory. After a large number of sample comparisons, it was found that the amount of research involving college students participating in exercise and the reasons for not participating in the study was insufficient, which led to the conclusion that the research conclusions were not objective and comprehensive. Therefore, in order to promote outdoor rock climbing, it is necessary to analyze the environmental impact factors of the system. Through the questionnaire survey method and the R-type factor analysis method, the paper has practical significance for the analysis and research of environmental impact factors in the promotion of outdoor climbing sports.

Xiaofeng Shi, Fei Wang published an article in the Ekoloji (Issue 107, 2019), entitled “Analysis of the Influencing Factors of Natural Ecosystem Maintenance on Promoting Outdoor Aerobic Exercise” (Shi and Wang 2019). This paper mentions the factors that influence the impact of natural ecosystems on promoting outdoor sports in order to increase the popularity of outdoor sports. The ecosystem’s vulnerability function, sensitivity and adaptability are established through three indicators of natural ecosystem exposure. Use this feature to divide natural ecosystems into slightly fragile and slightly fragile. Based on the evaluation results of each grade, the natural ecosystem evaluation model was constructed. On this basis, the effects of outdoor exercise on the changes of human physiological indexes were studied. The role of maintaining natural ecosystems in promoting outdoor sports was verified by changes in human physiological indicators. Applying the research to this study will help the research.

Gu (2012) mentioned that leisure and sightseeing agriculture provides the good development platform for outdoor sports. The development of outdoor sports can expand the development space of leisure and sightseeing agriculture, enhance its development momentum, and improve the overall development benefits. It proposes the composite development framework for leisure sightseeing agriculture and outdoor sports, and corresponding development strategies such as overall product development, project coupling operation, and brand joint promotion. It includes six aspects: landscape environment localization and ecological construction, activity experience design, cultural tangible display, rational management model, management talent classification development, brand joint promotion, etc. There is no specific explanation for the rock climbing movement. Therefore, this paper proposes the impact of ecological environment quality on the promotion of outdoor climbing, and takes college students as an example.

2 Idea description

2.1 Analysis method of environmental impact factors in the promotion of outdoor rock climbing

2.1.1 Questionnaire Survey

Students from all schools in Shandong Province were selected as research objects. The main contents of the questionnaire survey include the current situation of college students participating in outdoor sports training and the related reasons for not participating. 1,000 questionnaires were distributed to college students of different majors. After the questionnaire submitted, the recovery rate of the survey questionnaires on the participation of college students in Shandong Province in outdoor sports exercise was 94.6%, and the effective rate was 92.5%, which is in line with the research standard. See Table 1 for details.

Table 1 Statistics of student questionnaires

Questionnaire	Number of questionnaires issued	Questionnaire recovery questionnaires	Number of valid	Recovery rate	Efficient
Student	1000	946	925	94.6%	92.5%

questionnaire

2.1.2 Mathematical Statistics

All the data in the questionnaire were statistical software SPSS11.0 Perform system processing. To check the reliability and validity of the questionnaire, the global analysis method and the T of individual samples can be used. Finally, the statistics on the participation of outdoor climbing sports are completed. Based on the R-type factor analysis method, the factors related to the participation consciousness of outdoor climbing in Shandong Province can be judged.

2.2 Analysis of environmental impact factors in the promotion of outdoor rock climbing

According to the scores of the questionnaires of college students participating in outdoor sports exercise in Shandong Province, the KMO value was calculated to be 0.698 using 16 variables. Statistics stipulate that the KMO value that can be used for the factor analysis process must be greater than 0.6, so this questionnaire is consistent with the conditions for factor analysis. The Bartlett spherical test has a companion probability of 0.000, lower than the significant standard of 0.06, which further indicates that the questionnaire can be factored out.

After the questionnaire was analyzed by the R-type factor, the main components were analyzed and the maximum variance rotation was processed. The feature value data, the contribution rate data, and the cumulative contribution rate data are calculated. Five factors with eigenvalues greater than 1 are used as reference objects by the Kaiser method, and the cumulative contribution rate is not less than 77.146. The main content of the original variable can be reflected by these five factors. The details are shown in Table 2.

Table 2 Variations of the overall interpretation after the rotation of the shaft

	First factor	Second factor	Third factor	fourth factor	Fifth factor
Eigenvalues	3.815	2.334	2.123	2.1	1.916
Contribution rate	23.841	14.584	13.271	13.128	13.631
Cumulative contribution rate	23.841	38.425	51.696	64.824	77.146

2.3 Determination of factor groups for environmental impact

Firstly, the main factor is clarified, and then according to the factor analysis rule, under the action of the “maximum orthogonal rotation method”, the various factors of the 16 variables tend to be polarized, and 16 variables can be classified into 5 factors.

According to the load amount, the proportion of each main factor is different, and the similar and high proportion variable is used as the main factor. It can be seen that the participation awareness of outdoor rock climbing in Shandong Province is mainly affected by the following factors: ecological environment quality factors, training environmental factors, and social environmental factors.

3 Results

3 Analysis of environmental factors in the promotion of outdoor rock climbing

Outdoor sports, with its healthy and versatile sports charm, make more college students take the initiative to join the training team. The article uses the R-type factor analysis method to identify the three factors that influence the participation of outdoor climbing in Shandong Province as follows.

3.1 Environmental factors

Under the influence of outdoor sports knowledge, college students learn to grow up, and they will perceive health as they accumulate over time, and form the cultural heritage in the subconscious. Therefore, the work of promoting outdoor sports culture and enhancing the atmosphere of outdoor sports culture is profound. In the campus environment, “the acceptance of outdoor sports by my classmates affected me” ranked first with the load of up to

0. 916. This phenomenon belongs to the “consensus” behavior in sociology. Personal behavior is not subjective and influenced by the choice of the public. If the outdoor sports development situation is good and the number of participants is more, the enthusiasm of college students to participate in outdoor sports activities is higher. College students participating in outdoor sports activities are also subject to extracurricular time restrictions, and need to arrange outdoor sports courses (Wang and Liang 2018, Zhao et al. 2014). In addition, the promotion of outdoor sports also affects students’ awareness of participation. Only by promoting the promotion and providing all kinds of equipment, can we provide a better outdoor sports environment for college students. Among college students, male college students prefer sports programs with strong strength and competitiveness. Girls prefer sports programs with small strength and flexibility. Therefore, there is a misconception that outdoor sports are the movement of girls. In the survey report, “Gender differences affect my participation in outdoor sports” ranked second with a load of up to 0.891. It can be seen that gender has a great influence on the participation of outdoor rock climbing. The awareness of participation in outdoor rock climbing is limited by the quality of college students. Students with relatively poor quality have low acceptance of outdoor sports. The research report shows that some college students think that their personality and physical conditions are not suitable for learning outdoor sports.

3.2 Influencing factors of the training environment

According to the research report, the participation of college students in Shandong Province from the first grade to the third grade has gradually increased. Outdoor sports training plays a leading role in this phenomenon due to employment pressures leading to the weakest participation in the fourth grade. The practice of outdoor sports training enables students to continuously improve their knowledge of outdoor sports and enhance their awareness of participation in outdoor sports. There are still some imperfections in outdoor sports training at this stage. For example, outdoor sports are various in form, but there are often only one or two options to choose from in actual training, which cannot meet the individualized exercise requirements of students. The outdoor sports theory class not only enhances the knowledge of outdoor rock climbing, but also enhances the participation intention of outdoor rock climbing. Let knowledge guide the action and achieve the purpose of exercising while completing the learning culture (Yang 2018, Cai et al. 2017).

3.3 Influencing factors of the social environment

As a kind of social and cultural form, outdoor sports are gradually moving towards life. The awareness of outdoor rock climbing participation is increasingly influenced by Chinese traditional culture. In the social environment, media factors account for a higher load. The media’s coverage of outdoor sports is an important way for students to understand outdoor sports, which can effectively enhance college students’ good feelings for outdoor sports. The stability and sustainability of the media will have a profound impact on the awareness of outdoor climbing. This is mainly reflected in the two aspects of improving the knowledge of outdoor rock climbing and the decision-making level of outdoor sports.

4 Discussion

The more basic knowledge the students have in outdoor sports, the more they can appreciate the advantages and functions of outdoor sports. And in strengthening physical exercise and strengthening physical fitness, it lays a solid foundation for the development of good exercise habits. Because male college students have higher requirements for outdoor sports, in the training process, the misunderstanding of boys’ outdoor sports is eliminated as much as possible, so that boys can correctly understand outdoor sports as the fusion of “power” and “beauty”. For example, the boxing exercises and street dances with strong exercise intensity are suitable for boys to exercise.

The love for beauty is the nature of girls, and the pursuit of standard body style has naturally become the main goal of girls participating in outdoor sports. Such as yoga, Latin and pilates, suitable for girls to exercise. In order to better balance the participation of male and female college students in outdoor sports and create a more comfortable learning environment, it is necessary to regularly organize diverse outdoor sports competitions. Emphasis is placed on encouraging male college students to participate and ensuring the number of boys participating in the competition. The significance of outdoor sports needs to be understood in depth in order to enhance the enthusiasm of boys for outdoor sports. According to the actual situation, the learning program for boys' outdoor sports has been improved (Hwang et al. 2018, Deng and Yan 2017).

During the course of teaching, the teacher's words and deeds will have a subtle influence on the students' learning attitude. Therefore, training courses should be organized to provide regular training for outdoor sports teachers so that teachers can develop new and master more training skills. Allow students to keep up with the times to learn the most popular forms of sports, such as hip-hop, boxing and yoga. Sports programs can fully mobilize the enthusiasm of students and enhance their enthusiasm. In addition, professional outdoor sports teachers should be hired to improve the training methods and ensure the quality of education. Under the premise of mastering the basic knowledge, teachers must also formulate a reasonable training plan, and have the training ability of physical training, psychological quality training and practical ability training. Teachers must not only teach students the basic knowledge, but also enhance their team spirit, demonstrate their own style, and build confidence, to pave the way for future outdoor sports.

Outdoor rock climbing is a form of culture. Multimedia should be given attention and vigorously promoted to provide more choices for college students. College students are involved in outdoor sports through publicity. Outdoor sports, as a healthy and upward sports model, should be a factor in assessing new college students. An employee with outdoor sports habits will have a healthy body and endurance. Such influence factors the social environment can contribute to the promotion of outdoor rock climbing.

5 Conclusions

In the article, the questionnaire is subjected to R-type factor analysis. According to the same characteristics of the variables with higher main factor loading, the three major environmental impact factors affecting the promotion of outdoor climbing sports are identified. They are the environmental impact factors in the promotion of outdoor climbing sports, the influencing factors of the training environment in the promotion of outdoor climbing sports, and the influencing factors of the social environment in the promotion of outdoor climbing sports. Reasonable suggestions are given to improve the promotion of outdoor rock climbing and allow more college students to participate in outdoor sports.

References

- Cai Y, Wu WQ, Zhou XL, et al. (2017) Biomechanical Analysis of the Start Movement of Speed Rock-Climbing Athletes. *Journal of Tianjin University of Sport* 32 (3):256-260.
- Deng YL, Yan LT (2017) Estimation of Multi-Period Revenue Guarantee Value Combined with Asset Allocation Strategy in Mixed Fractional Brownian Motion Environment. *Journal of Natural Science of Heilongjiang University* (02):5-11.
- Gu XY, Meng MH, Yu YW (2012) Comprehensive Development of Leisure Agriculture and Outdoor Activities. *Journal of Zhejiang Forestry College* 29 (1):104-110.
- Huang L, Gao M, Hsu P (2019) A Study on the Effect of Brand Image on Perceived Value and Repurchase Intention in Ecotourism Industry. *Ekoloji* 28 (UNSP e107081107):283-287.

- Hussain HI, Salem MA, Rashid AZA, Kamarudin F (2019) Environmental Impact of Sectoral Energy Consumption on Economic Growth in Malaysia: Evidence from ARDL Bound Testing Approach. *Ekoloji* 28 (UNSP e107018107):199-210.
- Hwang YY, Hu QH, Jiang DS, et al. (2018) The Environment Air Quality Condition and Cause Analysis during the National Youth Games of Fuzhou. *Environmental Monitoring in China* 34 (1):78-85.
- Shi X, Wang F (2019) Analysis of the influencing factors of natural ecosystem maintenance on promoting outdoor aerobic exercise. *Ekoloji* 28 (UNSP e107338107):3015-3026.
- Wang HG, Liang GW. (2018). Research on the Influencing Factors of Rural Clean Energy Promotion Based on Grounded Theory. *Science and Technology Management Research* 38 (11):234-239.
- Yang B (2018) Construction of the Selection Model of Campus Football Players in Big Data Environment. *Automation & Instrumentation* (7):20-21.
- Zhao P, Wang N, Wang X (2014) National Fitness and the Development of Outdoor Sports in Hebei Province. *Hebei Academic Journal* (4):229-231.