Investigation and Analysis of the Satisfaction of Winter Olympic Sports Course

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Abstract. This study examines the impact of the Winter Olympic sports course at Z University on student satisfaction, focusing on differences among students. Using SPSS24.0, descriptive statistics, reliability and validity analyses, independent sample T-tests, one-way ANOVA, post-hoc comparisons, and Scheffe's test were conducted ($\alpha = .05$). Findings reveal: 1. Students highly appreciate teachers' professional attitudes. 2. Significant differences in satisfaction across grades, with freshmen exhibiting notably high satisfaction due to the course's novelty. 3. Students without prior course experience report higher satisfaction, particularly with teachers' attitudes. Recommendations include prioritizing teacher attitude and expanding the sample size for broader insights into factors affecting student satisfaction.

Keywords: Winter Olympic Games; courses; learning satisfaction.

1   Introduction

As China attaches great importance to the development of winter sports, especially in the context of the successful hosting of the 2022 Beijing Winter Olympics, it is urgent to strengthen the construction of Winter Olympics educational resources and courses. It is in line with China's broader strategy for comprehensive development and humanistic education. Despite policy support, educators acknowledge the challenges of effectively integrating Winter Olympics education, including its interdisciplinary nature and meeting student expectations. Therefore, a study focused on assessing Z college students' satisfaction with Winter Olympics physical education to gauge the relevance of the curriculum and inform future revisions.

2   Research Methods

2.1   Research Object

This research is based on the Z University general education curriculum winter Olympic sports elective course students as the research object, the questionnaire survey. The period is from March 2023 to June 2023, with a total of 102 people. A total of 102 questionnaires were collected, and 102 valid questionnaires were collected, with a recovery rate of 100 %. The basic information of students is shown in terms of gender, the number of males was 37, accounting for 88.1 %. The number of women was 5, accounting for 11.9 %. In terms of grade, the number of sophomores is 19, accounting for 22.55 %. The number of freshmen is 23, accounting for 27.45 %.

2.2   Research Tools

The questionnaire of this study is compiled concerning relevant literature. The questionnaire scoring method adopts the Likert Scale 5 subscales, all of which are structurally closed answers.[1] The numbers'5' on the scale means ' very satisfied ', number' 4 ' means' satisfied ', number 3 'means ' ordinary ', the number'2'means' dissatisfied ', and number '1 ' means' very dissatisfied '. The content of the questionnaire is divided into students' personal basic information. Gender, grade, whether to take off-campus physical education courses and willingness to continue elective courses are the basic background variables of this study.

2.3   Questionnaire Analysis

Factor Analysis.
According to Kaiser's point of view, KMO > 0.8 means meritorious, KMO > 0.7 means mediocre, KMO > 0.6 means mediocre, and KMO < 0.5 means unacceptable.[2]After factor analysis, KMO is 0.663 and Bartlett's sphere test reaches a significant level. Principal component analysis was used to extract the factors with eigenvalues greater than 1 by the maximum variation method, and the problem of factor load below 0.4 was discarded.[3] Through the four factors in the matrix after the rotation axis, the dimensions are technical skills, teacher attitudes, site equipment, and learning classmates, and the number of explanatory variables is 51.185 %, 58.462 %, 64.957 %, and 71.354 % in order, showing good validity.

Reliability Analysis.
This study will use Cronbach α internal consistency to test the reliability of the scale.[4] After factor analysis, the Crocher α values of the reliability of technical skills, teachers ' attitudes, site equipment, and learning classmates were 0.703,0.718,0.704, and 0.712, respectively. The values obtained were higher than 0.7, indicating that the scale had high consistency and good reliability.

Data Processing.

In this study, SPSS19.0 for Windows statistical package software was used to analyze descriptive statistics, factor analysis, reliability and validity analysis, independent sample T-test verification, single factor variation analysis, and post hoc comparison by Scheffe 's test method for data processing.[5] The significance level of this study is α =.05.

3   Results and Discussion

3.1   Factor Analysis of Course Satisfaction and Consistency Evaluation of Reliability and Validity

In terms of factor analysis, the analysis results of discrimination, show that all questions have good discrimination performance because the t-test analysis of all questions in the extreme group reaches statistical significance (P < 0.001); in addition, the correlation between each item and the overall questionnaire was also evaluated. The evaluation results showed that the correlation between all items and the overall questionnaire was more than 0.7 (p < 0.001), indicating that all items had a good correlation with the questionnaire. In terms of internal consistency assessment, the Cronbach's α value of the overall questionnaire is above 0.7, indicating that the topic has a very high degree of internal consistency in describing service quality. In the recovered questionnaire, factor analysis and correlation analysis were used to delete the items with insufficient discrimination (factor load less than 0.5) and reliability less than 0.7, and then factor analysis was used to construct validity, deleting items with factor load less than 0.5 or more than 0.5 in two dimensions at the same time, a total of 8 questions. Finally, a total of 20 questions were investigated in the class satisfaction scale. The load of the items and the variation of the surface interpretation are shown in:

The facet of " course content and skill training " mainly discusses the improvement of students ' winter Olympic sports technology and skills, teamwork, practical work experience, overall quality ability, and thirst for knowledge. Each evaluation content has a corresponding factor load, and a high load means a strong representativeness. The facet explained variance reached 51.185 %, and Cronbach's α was 0.703, showing good internal consistency. The " teachers ' professional and teaching attitude " dimension focuses on evaluating teachers ' technical knowledge, demonstration ability, professionalism, communication ability, and the rationality of teaching design and textbook assessment in the field of winter Olympic sports. The explanatory variation of this facet reached 58.462 %, and Cronbach's α was 0.718, which reflected that the content of the topic could well reflect the professional attitude of teachers. The ' site equipment and environment ' dimension focuses on the setting of the site, environment, equipment safety, and danger notices for practical teaching activities. These factors are crucial to the smooth progress of teaching. The explanatory variation of this dimension reaches 64.957 %, and the Cronbach's α is 0.704. Finally, the ' learning situation and teamwork ' dimension evaluates students ' interaction in the classroom, teamwork, discussion, and communication after practice, and also considers the impact of co-teaching male and

female students on the quality of learning. The facet also showed good internal consistency, with an explanatory variation of 71.354 % and Cronbach's α is 0.712.

3.2   The Score of Learning Satisfaction in Practical Teaching Activities

The average value of statistical dimensions of learning satisfaction in practical teaching activities: the teacher's attitude is 3.88, the technical skills are 4.39, the learning situation and team cooperation are 3.86, and the site equipment is 3.87. The average score of each dimension is more than 3 points, which means that the average view of the students in the class is ordinary and satisfactory, especially the score of the teacher's attitude, which is the highest among all the dimensions, which also means that the students in the class are satisfied with the teacher's professional knowledge. Other parts are above average satisfaction.

3.3   Comparison of Different Background Variables Affecting Satisfaction Factors

In Terms of Gender.
   In terms of ' course content and skill training ', the average score of males was 3.87, that of females was 3.89, the T ratio was − 0.330, and the significance level was 0.742. For ' teachers ' professional and teaching attitude ', the male average score is 4.39, the female is 4.38, the T ratio is 0.055, and the significant level is 0.956. In the ' site equipment and environment ' dimension, the average score of males was 3.86, females was 3.87, T ratio was 0.091, and the significance level was 0.928. In terms of ' learning situation and teamwork ', the average score of men was 3.90, that of women was 3.79, the T ratio was 1.692, and the significance level was 0.094.
   From the above data, the learning satisfaction of men and women has not reached a significant level in the four dimensions. This shows that there is no obvious difference between men and women in this course, and there is not much difference between men's and women 's satisfaction with each factor.

In Different Grades.
   According to Table 1, there are significant differences in teachers ' attitudes. After post-hoc comparison, it was found that sophomores (4.54) were greater than freshmen (4.26), indicating that freshmen were more satisfied with teachers ' attitudes than sophomores. The results of this study are consistent with the research of scholars, and the novelty of the new students is often higher than that of other grades.

Table 1. Variance analysis table of curriculum satisfaction in different grades

Facet		Mean square	Degree of freedom	Average Sum of squares	F ratio	Significance
Course content and skills training	Groups	.065	3	.022	.184	.907
	Interclass	11.468	98	.117		
	Summation	11.533	101			
Teachers ' profession and teaching attitude	Groups	.888	3	.296	5.160	.002
	Interclass	5.622	98	.057		
	Summation	6.510	101			
Site equipment and environment	Groups	.734	3	.245	.648	.586
	Interclass	36.985	98	.377		
	Summation	37.720	101			
Learning and teamwork	Groups	.392	3	.131	1.464	.229
	Interclass	8.741	98	.089		
	Summation	9.133	101			

*$P < .05$

Different Pre-class Experience.

According to Table 2, most of the students who take this course are not familiar with this course, and a few students have experience. The comparison results show that there are significant differences in teachers ' attitudes. The students who have not taken the course have a better attitude towards the teacher than those who have taken the course, which means that the students who have not taken the practical teaching before class are satisfied with the teacher's attitude towards this course. In terms of other factors, there was no significant difference.

Table 2. Comparison of different pre-class experiences on course satisfaction

Facet	Peer group	Average	Standard deviation	T ratio	Significance
Course content and skills training	Taken the course	3.90	.340	.083	.774
	Not taken the course	3.86	.338		
Teachers ' profession and teaching attitude	Taken the course	3.99	.354	6.005	.016
	Not taken the course	4.39	.211		
Site equipment and environment	Taken the course	3.90	.667	.863	.355
	Not taken the course	3.85	.594		
Learning and teamwork	Taken the course	3.83	.318	.191	.663
	Taken the course	3.87	.295		

Willingness of Follow-up Learning in Practical Teaching Activities.

According to the comparison results in Table 3, there is no significant difference in the follow-up learning willingness of practical teaching activities for the four dimensions. This shows that the students who continue to take the course do not have much difference in the four dimensions, will not be affected by a certain dimension factor, and are particularly motivated to recommend other students to continue the course. In other words, for students, the factors of the four dimensions give students the idea of recommending continuing elective courses, so most of the students in the questionnaire express their willingness to continue to recommend elective courses.

Table 3. Satisfaction will continue to be recommended after the course.

Facet	Peer group	Average	Standard deviation	T ratio	Significance
Course content and skills training	Continue	3.86	.345	.768	.383
	Not continue	3.96	.267		
Teachers profession and teaching attitude	Continue	4.38	.234	1.331	.251
	Not continue	4.46	.374		
Site equipment and environment	Continue	3.84	.610	.088	.768
	Not continue	4.01	.623		
Learning and teamwork	Continue	3.86	.305	.074	.786
	Not continue	3.86	.274		

*P<.05

4   Conclusions

First and foremost, for the survey of this course, the students ' satisfaction with the course is the highest in the aspect of teachers ' attitude, which shows that the students have a high recognition of the professional attitude of the teachers in this school and become the characteristics of the course in this school. In addition, in the satisfaction survey of different grades, there are significant differences in the comparison of teacher attitude factors. Through post-hoc comparison, it is found that freshmen are particularly satisfied with the course. It is speculated that the reason for its high score may come from the novelty and initial experience of the course, so the satisfaction of teachers ' attitudes is higher than that of students in other grades. Finally, in the survey of pre-class experience, the results show that students who have not taken the course are more satisfied with the teacher's attitude than experienced students. Especially in the aspect of teachers ' attitude, the students who take the course for the first time are satisfied, which shows that the teachers ' attitude in the course makes the students who take the course for the first time satisfied and reflects the value of the course.

Data Availability

The data supporting this review article are from previously reported studies, which have been cited.

Conflicts of Interest

The authors declare that they have no conflicts of interest regarding the publication of this paper.

Authors' Contributions

Ming-yuan Zhao, Bao-shan Qian, and Jin-guo Wang contributed equally to the study. Gongbo Wei and Zhizheng Wang acted as co-supervisors and revised the manuscript. YunYang prepared an outline, supervised, and performed the final revision of the manuscript.

Acknowledgments

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