

## Article

# Group Attitude Survey on the Effectiveness of Remote Physical Training for Adolescents in the Post-Epidemic Era

Wu Qimeng, Pang Xuelin

Department of Physical Education, Harbin Engineering University, Harbin, Heilongjiang, 151001

\* Correspondence: [qimeng@hrbeu.edu.cn](mailto:qimeng@hrbeu.edu.cn)

**Abstract:** In the context of the new crown epidemic, remote physical training will already be in order under the guidance of the Ministry of Education. There is a global focus on current lifestyle behaviors and the future health and well-being of youth. Youth physical activity, aerobic activity and muscle fitness levels are declining.<sup>[1]</sup> Research on the effects of youth physical training and group attitudes is still in its infancy. This study conducted in-depth interviews with online physical training students, parents, teachers involved in the construction of online physical training, and sports practitioners through interview methods, documentation, and mathematical statistics. The results of the interviews were qualitatively coded using NVivo to summarize the attitudes of different subjects toward physical fitness training and the influencing factors, (1) students were basically satisfied with the teaching effect of online physical fitness training (2) parents thought the teaching effect of online physical fitness training was average (3) physical education teachers thought the effect of online physical fitness training was average (4) physical education practitioners thought the effect of online teaching was poor.

**Keywords:** online physical training; attitudes: influencing factors; interview method

Since December 2019, the new crown epidemic has affected the work of primary and secondary school teachers and education professionals in the conduct of their work. Responding to the CPC Central Committee's directive to suspend classes without stopping school and transforming what was offline physical education into online physical education has been a huge challenge for physical education teachers, students, and their parents.<sup>[2]</sup> Under the guidance of the Ministry of Education's "Guidance on Further Improving Online Teaching of Physical Education in Higher Education During the New Crown Pneumonia Epidemic", online physical training in Heilongjiang Province has also entered the middle and late stages of construction, forming a more complete online physical training system.

## 1. Objective and research method

### 1.1. Research Subjects

The study population was selected from 10 randomly selected school students, 10 parents, 4 physical education teachers from primary and secondary schools, and other educational practitioners in Heilongjiang province. Among them, 10 parents included 10-14 years old, all school sections, and students were above 14 years old. And the interviewers were numbered according to the interview order according to 1-34, and the selected physical education teachers were required to have the construction and participation of online physical training, and the data of physical education teachers who did not conform were deleted. For other education and training industries the practitioners of sports programs or youth physical training industries were the main respondents.

## 1.2. Research Methodology

### 1.2.1. Literature Method

The latest developments in the construction of online physical training and the development of the epidemic were compiled and summarized through three search platforms: CNKI, VIP Academic Search Platform, and Web of Sciences. This was used to frame the interviews.

### 1.2.2. Interview method

A total of 10 students, 10 parents, 8 physical education teachers, and 6 sports industry-related practitioners were interviewed in depth over a 2-month period through an in-depth interview method that included telephone interviews, face-to-face interviews, and video interviews.

### 1.2.3. Qualitative analysis and mathematical analysis method

The results of the interviews were summarized and sorted out, and the interviews were coded using NVivo12plus software. And the common questions were summarized. The summarized and sorted results were imported into SPSS26, and descriptive statistics were applied to quantify the interview results. nvivo12plus is a professional qualitative research software, which is a software tool often used by researchers in rooted theoretical research methods. The software helps to quickly organize and analyze relevant data, such as interviews, literature, questionnaires, audio, etc. It enables effective coding and avoids the tedious work involved in the previous data organization process. [2]

## 2. Results and Analysis

### 2.1. Students' attitudes towards online physical training

The results of the interviews with 10 students were summarized and sorted out, as shown in Table 1, in which three students felt that the effect was not good. In the interview process, it was found that No. 20 had strong motivation and interest in physical training, but the reason for the ineffectiveness of physical training was the limitation of the physical education room, which affected the effectiveness of online physical training. No. 21 said that he would choose to study other subjects in the online physical education class due to the pressure of further education and the fact that physical training was a video course. In the interview, No. 17 and No. 33 were very satisfied with the teaching effect of online physical education. In the interview with No. 17, we found that the parents were accompanied and had a positive attitude throughout the physical fitness training, and used software such as Shake, Racer to take small videos as a memento of the physical education class under the teacher's suggestion. No. 33 opened the audio at the teacher's request, and the physical fitness training atmosphere was strong with the teacher and students interacted frequently. Frequent. 18 expressed basic satisfaction with online physical training, because 18 is more motivated to physical activity, physical condition is also superior, for the physical education teacher itself particularly like but slightly feel that physical training exercise load is less, the frequency is also relatively low. No. 22, No. 25, No. 28, and No. 29 all thought that the online physical training was generally effective, and No. 22 also thought that his concentration was not good, but that parental accompaniment could slow down his slipping behavior to a certain extent. No. 25 himself was physically weak, so he tried hard for the exercise movements on physical training but could not do the standard that the teacher said. No. 28 was not interested in the video course. Lack of motivation and interest in learning. No. 29 has a BMI of over 30, which can be attributed to obesity. Insufficient physical activity is an important factor contributing to obesity. Physical inactivity has nowadays become a major manifestation of modern lifestyles. [3] 29 struggles to complete some movements in physical education classes, and since he lives with his grandparents, his only device for conducting online classes is his cell phone, which also causes some inconvenience for online physical education teaching.

Table 1 Collation of student interview results.

Number	Attitude	Interview keyword collation
10	Bad effect	Poor self-control; slipping; absent parents
17	Very satisfied	Parental accompaniment; small video assignments; parent-child interaction
18	Basic satisfaction	Athletic prowess; likes physical education teachers; teacher-student interaction
20	Bad effect	Faculty-student interaction; recorded courses; site limitations
21	Bad effect	Pressure to go on to higher education; recorded courses; parental attitudes
22	Average effect	Lack of concentration; parental accompaniment; site limitations
25	Average effect	Difficulty of motor skills; inappropriateness of conformity; unclear instructions
28	Average effect	Lack of teacher-student interaction; venue limitations; parental accompaniment
29	Average effect	Excessive difficulty in motor skills; easy to slip; unsuitable equipment
33	Very satisfied	Classroom atmosphere; parental accompaniment; teacher-student interaction

2.2. Parents’ attitudes toward online physical training

The results of the interviews with the 10 parents were compiled, and the school segments of the 10 parents are shown in Figure 1, with the age distribution of the students ranging from 13 years old to 14 years old and above.

Ten parents were interviewed, and the results of the interviews were summarized and analyzed. The parents interviewed were coded according to the interview label number, as shown in Table 2. Among them, interviewed parents aged 10-12 years old, No. 19 thought that the effect of online physical education was very satisfactory, and the frequency of interaction between physical education teachers and students was high. No. 24 thought that the effect of online physical education was average, and thought that the effect of online physical education was not satisfactory because students had poor self-control and could not control their concentration during physical training, parents only needed to work at home to spend limited time with their children, and parents were worried about the safety of students trying some movements. No. 34 is satisfied with the effect of online physical education, but still has some concerns about myopia, and is very satisfied with the classroom organization, teacher-student interaction, in-person sessions and the teaching effect of physical training. no. 1 thinks the effect is average, because the indoor venue largely restricts students' activities due to the high height of the children and the low exercise load. No. 30 thought that the effect of online physical training is not good, online physical training still requires children to stare at the screen, myopia problem is particularly prominent. Secondly, site restrictions cannot be carried out amplitude of exercise, exercise intensity, exercise load and a variety of limiting factors lead to the ineffectiveness of online physical education classes.31 that students learn online are recorded courses lack of teacher-student interaction and action correction, which is not conducive to the effect of building physical fitness training for students. The 13-14 years old respondent #14 believes that the students' limbs are not coordinated and some of the movements cannot be mastered, and the students themselves are more introverted with weaker motivation and interest in online physical training, which makes the teaching less effective. #23 is in the critical period of higher education, so the participation in online physical training is low. The study and review time for various exam subjects is tighter, and the

participation in physical training is lower, so the overall effect of online physical training is poor. The number 4 respondents over the age of 14 indicated that students are in their adolescence and therefore have low interest and motivation in online physical education classes, lack of concentration in class, and lack of communication with teachers. 26 parents believe that online physical training still cannot solve the problem of students' myopia, the students' height and weight base is large, and indoor sports venues are more restrictive to students' activities, so online physical training is the teaching effect is not good.

**Table 2 Interviewer attitude keywords.**

Number	Attitude	Age group	Key Words
1	Average effect	10-12 years old	Lack of interest; field limitations; exercise load
4	Average effect	14 years old and above	Lack of attention; lack of interest; lack of interaction
14	Average effect	13-14 years old	Introverted personality; physical incoordination; poor concentration
19	Very satisfied	14 years old and above	Teacher-student interaction; appropriate exercise intensity
23	Bad effect	13-14 years old	High pressure to go on to higher education; lack of interest in learning; time constraint
24	Average effect	10-14 years old	Poor self-control; parental accompaniment time; safety considerations
26	Average effect	14 years old and above	Nearsightedness problems; space limitations; less time for online physical education classes
30	Bad effect	10-12 years old	Myopia problems; restricted field; less sports load
31	Average effect	10-12 years old	Lack of teacher-student interaction; movement safety; myopia problems
34	Very satisfied	13-14 years old	Myopia problems; lively classroom atmosphere; parent-child interaction

### *2.3. Attitudes of physical education practitioners and physical education teachers toward online physical fitness training*

Interviews were conducted with eight physical education teachers and six physical education industry practitioners, four of whom were not involved in the construction of online physical training for sample exclusion. The physical education teachers' attitudes toward online physical education classes and the interview keywords are shown in Table 3. No. 2 interviewees believed that the courses were conducted in the form of recorded broadcasts, which did not get feedback from students and instructed students with delay. No. 6 believed that online physical training had more restrictive factors and limited venue equipment, which had a greater impact on the teaching effect of online physical training. No. 7 believed that the conduct of the effect of physical education was very satisfactory, and the recorded courses while asking parents to clock in their students' exercises and control the exercise load strictly according to the published standards. In-depth interviews were conducted with No. 32, who believed that the main factors influencing the effectiveness of online physical training were the use of recorded lessons in the teaching process, which could not attract students' attention, and the lack of time for parents to supervise and accompany students, which led to the ineffectiveness of online physical training due to a combination of reasons.

**Table 3 Physical education teachers' attitudes and key words.**

Number	Attitude	Interview Keywords
2	Average effect	Not getting feedback from students; delayed recorded sessions.
6	Average effect	Field limitations; physical education equipment limitations; teacher instruction giving.
7	Very satisfied	Teacher-student interaction; punch card assignments; motor load control.

32	Bad effect	Lack of self-control; lack of interest; lack of supervision
<p>Interviews were conducted with six sports practitioners from those involved in sports programs and physical fitness training as shown in Table 4. Due to the epidemic, all of them launched free online courses during the epidemic in order to enhance learning and retain customers. No. 3 interviewees indicated that the effectiveness of online teaching was not good, and the main influencing factor was parents' attitude toward the courses, followed by the high requirements of sports venues the safety of sports required parental supervision, and the exercise load could not be guaranteed. No. 5 was engaged in skill-based physical education and believed that the teaching effectiveness was average mainly due to No. 8 was engaged in skill-based physical education and believed that the teaching effectiveness was mainly due to the limitation of sports equipment and venues, the limited time of online courses to correct students' movements in time, and the influence of parental supervision and accompaniment on students' learning status. No. 8 believed that the influence of online physical training mainly depended on parents' approval and attitude, students' interest and motivation, and the secondary reason was the limitation of venues and reasonable arrangement of sports load. No. 9 believed that the effect of online physical training was No. 11 thought that the effect of teaching was basically satisfactory, although the venue and equipment were limited, parents actively participated in training and clocked in, and the effect of online teaching was basically satisfactory. 27 thought that the effect of online courses was average, and the main influencing factors included the safety of the sport which was not controllable online. Secondly, students' interest is not easy to mobilize, and students' myopia problem has a certain impact on students' participation in the course because all courses are conducted online.</p>		

Table 4 Attitudes of sports practitioners and interview keywords.

Number	Engaged in projects	Course Effectiveness	Interview Keywords
3	Physical Fitness Training	Bad effect	Parental attitude; sports field; sports safety; sports load
5	Fencing	Average effect	Exercise equipment limitations; movement corrections; parental supervision and accompaniment.
8	Basketball for kids	Average effect	Site limitations; exercise load arrangements; parental approval and attitudes.
9	Physical Fitness Training	Bad effect	Site limitations; sport interest; course recognition
11	Fencing	Basic satisfaction	Parental approval; training punch cards; site equipment limitations.
27	Physical Fitness Training	Average effect	Myopia issues; sports safety issues; student interest

3. Conclusion

Interviews were conducted with students, physical education teachers, parents, and physical education practitioners through the interview method, and the results were integrated and analyzed. The interviews with 10 students were sorted and summarized. The attitudes of different subjects towards online physical training were summarized and analyzed separately.

3.1. Analysis of students' attitude towards online physical training and the reasons for it

The students were basically satisfied with the teaching effect of online physical training, and the following reasons were found to influence the teaching of impression physical training for the students:



1. Students' self-control, the subjects selected for this interview method are secondary school students with certain self-judgmental ability. Therefore, more than the average students in the interview said that the main reason for the influence of online physical education classes is their own self-control. A portion of the students who believed that the main reason for their poor performance was their poor self-control and low concentration, which led to the ineffectiveness of online instruction.
2. Parental accompaniment, which has a significant impact on the effectiveness of physical training instruction. On the one hand, it is because parents can play a supervisory role in the learning process of students, and on the other hand, it can promote students' interest in learning to enhance their motivation and show their desire to perform. The combination of the two aspects influences the effectiveness of online physical training instruction.
3. Teacher-student communication, which has an important impact on the effectiveness of online sports courses. First, student-teacher communication is divided into immediate and delayed communication, both of which can monitor students' online learning, ensure participation and motivate students' interest. Instant communication attracts students' attention and corrects errors in time, while delayed communication allows students to review their skills.
4. Site limitations. Because online fitness training was conducted indoors at home, the venue for instruction was limited. Eighty percent of the students interviewed said that the limitation of the venue affected the effectiveness of the online fitness training classes, and that the preparation activities and many technical movements could not be strictly executed.

### 3.2. *Analysis of parents' attitudes toward online physical training and the reasons for them*

Through interviews with 10 parents, parents think that online physical training teaching is generally effective, summarizing the effect of parents on online physical training mainly includes the following points:

1. Site restrictions, most parents said the effect of online physical training has a greater impact. parents of students over 14 years old said that the limited space at home is more restrictive for students to play sports, 30% said Thirty percent said they were unable to complete the instructional tasks due to space limitations. Second, all parents indicated that they would limit the amount of physical activity for both the safety of the students and to reduce the noise impact on other family members and neighbors.
2. Nearsightedness is one of the factors that influence parents' perceptions of the effectiveness of online physical training, and myopia in school-age children is a public health issue of widespread concern. <sup>[4]</sup> Ninety percent of the 10 parents interviewed had nearsightedness in their students. The impact of myopia on physical training is mainly twofold, partly due to the need for students to perform physical movements away from the screen during online classes, which affects the effectiveness of online physical training. The other part of the problem is that parents limit the time students spend on the screen due to the degree of nearsightedness of their eyes, which affects the effectiveness of online physical training.
3. Interest and motivation, parents believe that online fitness training plays an important role in student engagement. The interest and motivation of online fitness training has an impact on the students' condition in class and their level of initiative. The variation and fun of online fitness training influences students' active participation and thus the effectiveness of online physical education.
4. Exercise load, different intensity exercise loads have different degrees of effect on students' physical health. <sup>[5]</sup> Eighty percent of the students' parents said that the load did not match the students' physical fitness. For physical education online instruction

in most of the time does not achieve the exercise effect of physical training. The physical fitness of boys and girls is not finely divided, which affects the effect of online teaching.

### 3.3. *Analysis of the attitudes and reasons of physical education teachers and practitioners on physical training*

#### 3.3.1. Analysis of physical education teachers' attitudes toward online physical training and the reasons for them

Interviews with physical education teachers yielded the following influential aspects. Physical education teachers believe that online physical training is generally effective, and the main influencing factors are

1. Teacher-student communication and untimely feedback from teachers and students due to the use of the recorded format. Teachers were unable to arrange off-class tasks, coordinate course objectives, and assess student fitness based on student feedback. Second, teachers lacked immediate communication with students. They are unable to play a supervisory and instructional role in physical training, and they are also unable to use words to mobilize students' interest and focus their attention.
2. Student interest mobilization, due to the time constraints of online physical training classes received in the teaching process lack of interest mobilization links. The short duration of online teaching videos omits many important teaching links, and it is impossible to integrate games and interactions in the teaching process.
3. Exercise load, physical education teachers think that the exercise students' exercise load in the online teaching process is difficult to meet the standard. In the teaching process, considering the limitation problem of indoor activity area, some teaching movements that require less space are selected, but students still cannot fully participate. Secondly, since the recorded lessons are uniformly recorded, it is not possible to arrange the load according to physical fitness. <sup>[6]</sup> Therefore, the exercise load has an impact on the teaching effectiveness of online physical education.

#### 3.3.2. Analysis of sports practitioners' attitudes toward online physical training and the reasons for them

Through interviews with sports practitioners, sports practitioners believe that online teaching is ineffective and get influenced by the following factors:

1. Parents' attitudes, as the online courses offered by sports practitioners during the epidemic are free courses, <sup>[7]</sup> therefore there are many parents' attitudes towards online courses that lack importance and recognition. As a result, the effectiveness of online physical education has been greatly affected.
2. Limitations in playing fields and equipment. Because of the high demand for playing fields and equipment in extracurricular sports institutions, many important skills cannot be accomplished indoors. Therefore, most of them use basic technical exercises or physical exercises. This has a greater impact on the effectiveness of online instruction.
3. The safety of sports and the safety of training in the home, control the difficulty of performing physical activities and exercise load, which also affects the participation of students and the speed of the course. At the same time, the skills that students have mastered cannot be practiced systematically, and skill-based physical activities are mainly demonstrated by teachers, which is not effective for learning.

Through interviews with different subject matter, the results were coded to summarize and categorize the attitudes of different subjects towards online physical training to mobilize student participation and motivation in class and the influencing factors, and to make constructive suggestions for the development of online physical training.

#### 4. Development suggestions

##### 4.1. Mobilizing student participation and motivation in class

After interviews on several teaching topics, it was found that the factors that have a greater impact on the effectiveness of online teaching for students are students' motivation and interest. Therefore, on this basis, it is proposed to start from motivating students in three directions: the way of online teaching, teaching purpose, and teacher-student interaction. Firstly, physical education teachers should try to use live courses instead of recorded courses in online courses, and open audio settings in the live process to improve the frequency of teacher-student interaction to enhance student motivation. Secondly, intelligent means and modern technology should be used in the teaching process, and procedural games should be integrated into the teaching process. Finally, teachers who are older or not proficient in the use of live courses should be trained uniformly, so that every physical education teacher can participate in the construction of online physical training. And the content and interest guidance methods of online physical education should be individually tailored for each different class and institutional situation.

##### 4.2. Simplify the content of the teaching format

In the interviews there were many classes in the form of aerobics or other sports that require large exercise areas, and the effectiveness of online classes was affected by the limitations of exercise space. Three suggestions were made to address this issue. Firstly, since different students exist in different sports space, in order to solve this problem according to the actual situation of different students to conduct a survey of sports space area, according to the space for class division, according to the space of sports space designated sports courses. Secondly, for schools with limited teachers can be used to record and broadcast live separately, for students with smaller activity space to record and teach, for students with larger activity space can be taught live. Finally, the form of sports should depend on the situation for students with larger activity space technology to design sports activities with greater ups and downs and a greater range of activities, while for students with more limited space for sports should be carried out to simplify the form of sports and sports content on the basis of ensuring the amount of exercise as much as possible.

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