

# Challenges and Viewpoints of Information-based Physical Education: Based on the Learning Experience of College Students

Feilong Wu<sup>1</sup>, Jun Jiang<sup>2\*</sup>

<sup>1</sup>Department of Physical Education, Xi'an Aeronautical University, Xi'an 710000, Shanxi China

<sup>2</sup>School of Martial Arts and Dance, Shenyang Sport University, 110102, Shenyang, China

\*Corresponding author. Email: 944051039@qq.com

## ABSTRACT

The research explores the opportunities and challenges of the information-based Physical Education (P.E.) industry from the perspective of college students. The study investigated the P. E. model implemented during the COVID-19 lockdown and in the post-epidemic era. Conduct online questionnaire surveys through open-ended questions to explore the main problems and challenges encountered in informatized P.E. from the perspective of college students, as well as their learning experience and views on informatized P. E.. Students are the main body of learning, and they are one of the representatives who have the most say. Therefore, a total of 425 college students from 7 colleges and universities participated in this survey. Analyzing the effects of the informationized P. E. industry from the perspective of students, and paying close attention to the voices of learners, provides a useful reference for the post-epidemic era or the implementation of hybrid P. E. and the development of the P.E. industry.

**Keywords:** College students; Informatization; P. E. industry; Opportunities and challenges; Learning experience and views

## 1. INTRODUCTION

The COVID-19 pandemic has caused drastic changes in the lifestyles of citizens around the world, and this has a direct and rapid impact on the global education field [1]. In order to prevent the spread of the epidemic, schools at all levels and types of schools around the world adopt a closed home isolation approach to implement "teaching and learning", that is, students turn to distance learning in an all-round way, which has led to a fundamental change in education [4]. In order to prevent the interruption of teaching and learning, many educational institutions use information technology to present teaching content, and educators and learners must quickly adapt to new teaching and learning methods [5]. This kind of distance teaching method has good advantages for theoretical study, but it has great challenges for P. E. (practical courses). In order to meet the challenge of distance education, P. E. teachers have also implemented countermeasures to promote physical practice courses (traditional courses) towards information-based P. E.. Based on new

technologies, they adopt new teaching methods and teaching methods to ensure and support students' online learning. This is a response and confrontation to the education crisis brought about by the epidemic. Although digital technology has been used to change traditional teaching methods (such as MOOCs) in the past, the results achieved are still relatively limited. Due to the COVID-19 outbreak, the organic integration of P. E. and the digital world has been rapidly promoted. New opportunities are ushered in the field of P. E., but it is also accompanied by many loopholes and challenges. Therefore, this study explores the advantages and bottlenecks of the informationized P. E. industry that combines P. E. and information technology from the perspective of students. This has played a better role in promoting the subsequent development of distance P. E. and mixed teaching, and flipping the P. E. classroom. And useful reference value.

## 2. METHODOLOGY

The research mainly uses the Likert 5-level scale (the scale is composed of a set of statements, and each

statement has five types: "strongly agree", "agree", "unsure", "disagree", and "strongly disagree" Answers are recorded as 5, 4, 3, 2, 1, respectively. The total score of each respondent's attitude is the sum of the scores of his answers to each question. This total score can indicate the strength of his attitude Or her different status on this scale, Cronbach's alpha is 0.856)

respectively to send questionnaires to P.E. teachers from 7 colleges and universities in different regions of China, and send the questionnaires to students through P.E. teachers, and finally through Email Way to recycle. The data was collected from March 2021 to April 2021, a few months after the start of the mixed P.E. period (Figure 1).

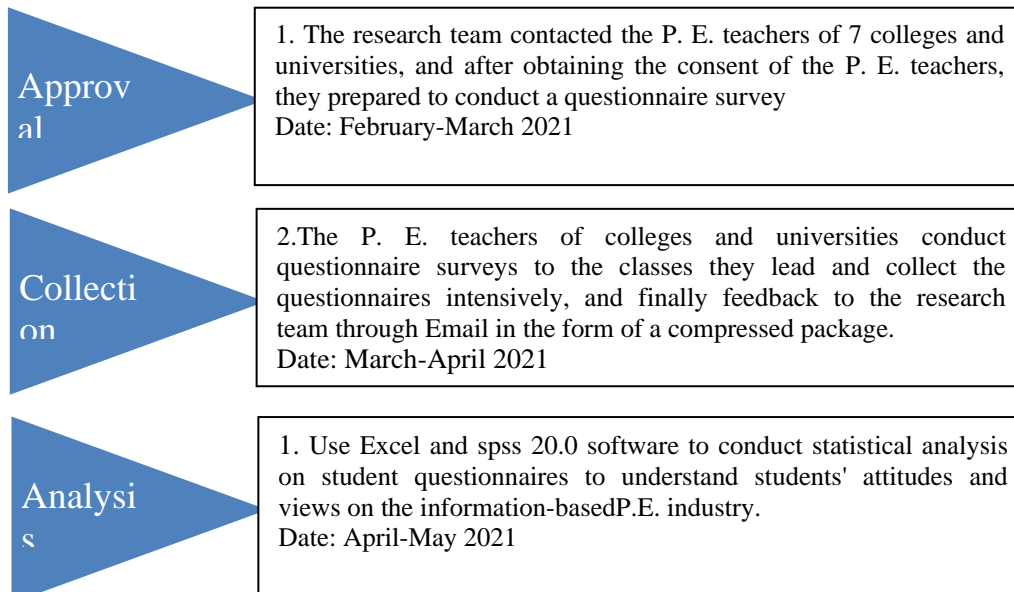


Figure 1 Implementation of the student survey program model

A total of 480 questionnaires were sent and 425 were returned, with a recovery rate of 88.5%. They were from different schools and regions.

203 (47.8%) rural college students, 127 (29.9%) county college students, 95 (22.3%) urban college

students, 231 (54.4%) females, and 194 (45.6%) males. Among them, first-year university students (72 (31.2%) females, 52 (26.8%) males), second-year university students (81 (35.1%) females, 69 (35.6%) males), third-year university students (78 (33.7%) women and 73 (37.6%) men) (Figure 2)

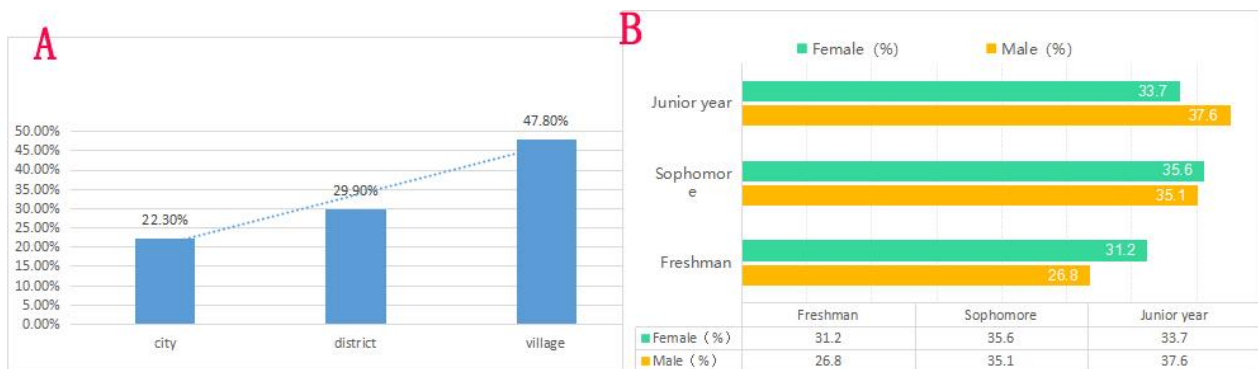


Figure 2 Samples of population geography and participation characteristics

### 3. RESULTS

#### 3.1 The main difficulties students find in the distance sports learning environment

There are several problems in the process of distance sports learning for students: these problems are mainly network foundation, home-equipped hardware e-learning products, learning space environment and atmosphere, teacher's information processing ability and

network teaching methods are inseparable.

##### 3.1.1 Barriers to IoT network and hardware infrastructure equipment

Distance sports learning requires a certain infrastructure and an effective network environment to effectively ensure the smooth progress of distance sports teaching. The survey found that the Internet of Things and basic equipment have brought many inconveniences

and challenges in the process of distance sports learning: 15.2% of the students said that it is difficult to access the Internet of Things because they are in remote areas in mountainous areas. Another 45.3% of students said that the remote teaching screen often appears static due to network stalls. However, 39.5% of the students said that the home network is better, which can guarantee the effect of distance learning. Furthermore, the survey of three indicators of hardware e-learning products (Smart

phone, TC, PC/Laptop) shows that students who do not have equipment at home account for 0.30%, 4.28%, and 12.31% respectively; those who borrow other home IoT networks for learning are respectively 3.56%, 21.36%, 36.74; and the learning equipment shared with others are 2.02%, 33.62% (there are two students studying online at the same time at home), 8.79%; the only equipment I use is 94.12%, 40.74%, respectively , 42.16% (Figure 3).



Figure 3 IOT network and hardware basic equipment obstacles

3.1.2 Distress of learning space and lack of learning atmosphere

During the outbreak of the epidemic, distance learning is limited to the family, so the home learning environment is very important. Wilson (1995) believes that the learning environment is where learners cooperate and support each other, and use a variety of tools and information resources to support each other to achieve learning goals. However, due to the COVID-19 epidemic, the specific learning environment

has to be turned to the family, which leads to the lack of learning space and learning atmosphere. The survey showed that: 8.32% of the students did not have a fixed learning space at home; 45.67 students said that there is some space at home for sports learning; 38.16% said that there is a room for me to study at home, only 7.85% of the students I think there are multiple rooms at home for me to study and use (Figure 4)

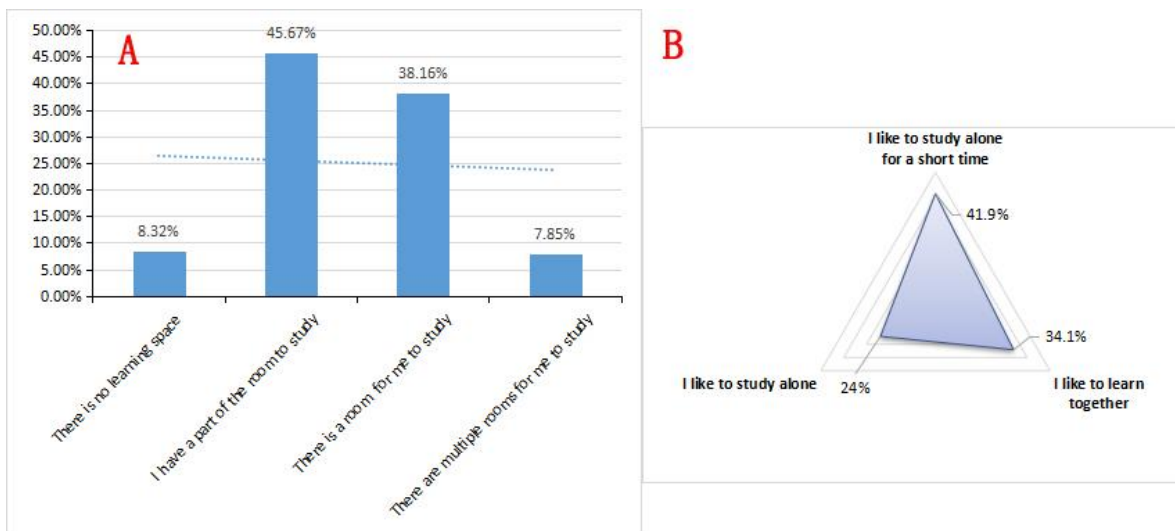


Figure 4 Proportion of learning space and Influencing factors of learning atmosphere

Another factor that affects distance P.E. is the learning atmosphere: 41.9% like to study alone in a short period of time; 34.1% like to study together in groups; 24% like to study alone. Therefore, in summary, the learning space and atmosphere are also the main obstacles affecting distance sports learning (Figure 4).

**3.2 Students express incomprehension and concern in distance P. E.**

Students feel incredible about distance P.E., especially in comprehensive universities. Students generally believe that P. E. should be taught face-to-face

(traditional P. E. teaching methods), and distance teaching is carried out in an isolated state. They feel very puzzled and feel for the exam. Worry, a key issue commonly believed by students is that distance P. E. has taken away the "socialized" elements of traditional teaching methods. The survey results show that 62.12% of students are surprised by distance sports learning; 78.41% of students have difficulty understanding and practicing the content of distance sports teaching practice; 74.63% of students are worried about their own sports performance. 92.24 students think that home learning lacks collectivism or learning atmosphere (Table 1).

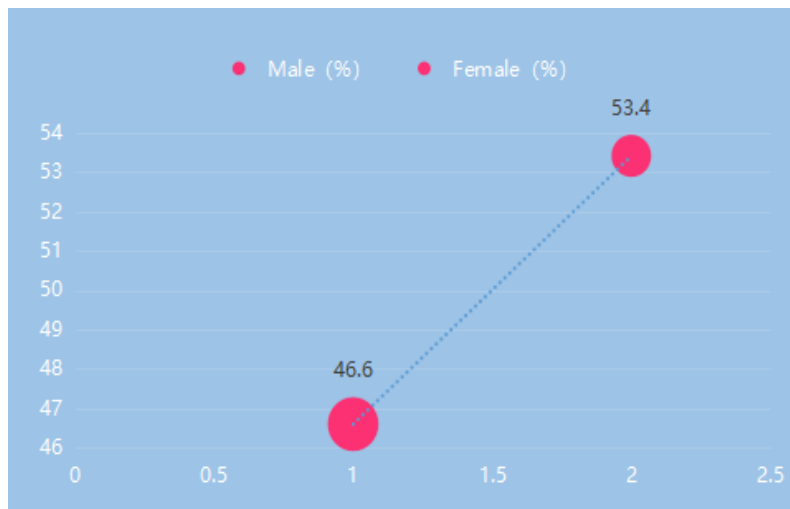
**Table 1 Students' worries in distance P. E. teaching**

Main concerns of students	Y	N
Will you be surprised by distance sports learning	62.12%	37.88%
Are you worried about how to take exams in distance sports learning	74.63%	24.37
Do you understand the technical movements explained by the P. E. teacher and can practice	21.59%	78.41%
Do you think there is a lack of collectivism or learning atmosphere	92.24%	7.76%

**3.3 Students' suggestions for future distance sports learning**

After a period of distance sports learning, according to the survey results, almost 412 (97%) students (192

(46.6%) for males and 220 (53.4%) for females) are proficient in operating remote sports learning software. , And hold a positive attitude (Figure 5)



**Figure 5 The degree of operation of the software for students' distance sports learning**

From the perspective of students, students maintain a positive and optimistic attitude towards the future of distance sports learning. They indicated that more PowerPoint (56.34), technical action decomposition

(97.18%), and video (98.41) should be embedded in the process of distance sports learning. %, online discussion (75.12%), social media (84.16%), classroom Q&A (87.25%) and other links (Table 2).

**Table 2** Students' suggestions and opinions on distance learning

Students' views and suggestions on distance sports learning tools	Total
PowerPoint	56.34%
Provide micro lessons	43.26%
Technical action breakdown	97.18%
Video	98.41%
Online homework	41.30%
Online discussion	75.12%
Q&A in Class	87.25%
Social media	84.16%
Course feedback	54.32%

#### 4. DISCUSSION

This research explores the effect and influence of distance sports learning from the perspective of college students, so as to analyze the difficulties of distance sports learning and valuable suggestions for students. The research uses online surveys to revisit the learning experience of students during the COVID-19 outbreak. In the event of an emergency crisis, the main problems and challenges encountered in online distance sports learning were suddenly packed from the traditional face-to-face teaching method, and they The worries and concerns during this period, as well as the main views and opinions on distance sports learning, put forward students' own opinions on the further improvement of distance sports teaching. In our research, we found that the main problems faced by students are as follows: First, the Internet of Things and learning infrastructure barriers, because students are very worried about the speed of the Internet of Things and the use of distance learning in the process of distance sports learning. This will greatly affect the learning effect of students. Second, the troubles of learning space and the lack of learning atmosphere cause great troubles to distance sports learning. On the one hand, it greatly affects and restricts students in the limited learning space. Physical exercises in sports, on the other hand, it is difficult for students to achieve face-to-face learning with limited screen images. In addition, it is difficult to "socialize" elements on campus in distance learning. The lack of sports learning atmosphere creates obstacles for students to remember, because some sports projects require technical actions that the team completes together. Third, the students were surprised, puzzled and worried the first time they heard about distance sports learning, because it is difficult for students to understand how to study online sports courses and how to take exams, which creates a lot of psychological pressure on students. Fourth, after a period of distance learning in P.E., students gradually

adapt to this learning mode and hold a positive attitude towards this learning.

To sum up, education is not only a requirement for the development of students, but also a base for the country to cultivate talents. Talents are the core productivity in the era of knowledge economy and the country's long-term development. However, the distance education carried out during the new crown pneumonia epidemic has caused great learning difficulties and psychological pressure for students. They not only need to learn P. E., but also learn more other courses. Psychologists have pointed out that the psychological, behavioral and physical trauma caused by home confinement has a negative impact on the quality of life of strong teenagers, and this impact may last for a long time [2]. The perspective of the educational unit must consider the many problems that students face in distance learning, including infrastructure and equipment, student psychology, economic pressure, etc., to provide help and support to students in need. The survey results show that 45.3% of students have a serious impact on students' learning effects due to the speed of the Internet of Things. In the era of rapid development of the Internet of Things, whether it should be based on consideration. 32.09% of students do not have Internet of Things and distance learning infrastructure equipment at home, which will undoubtedly bring catastrophic things to students. Because they have no way to complete their studies.

#### 5. CONCLUSIONS

Our research revisited what international organizations and educational researchers pointed out since the beginning of COVID-19; the pandemic has exacerbated the existing economic and educational inequality among young people from disadvantaged backgrounds in school systems around the world [1,3].

Schools are completely closed and students study at home. This is undoubtedly disastrous for disadvantaged groups, because they do not have better conditions to meet the requirements of P. E., which not only affects students' academic studies, but also brings more to students. Economic burden and psychological problems. Therefore, exploring the distance sports learning experience from the perspective of students can better provide strong support and valuable opinions and suggestions for the post-epidemic era and the development of the distance sports education industry. The limitation of this research is mainly to explore the main problems encountered in distance sports learning from the perspective of students and students' main views on distance learning, and lack of analysis of the main problems and viewpoints of distance sports learning from the perspectives of P. E. teachers and administrators.

## REFERENCES

- [1] UNESCO. Education: From Disruption to Recovery. UNESCO Inst. Stat. Data. 2020. Available online: <https://en.unesco.org/covid19/educationresponse#:~:text=UNESCO%20is%20supporting%20countries%20in,for%20vulnerable%20and%20disadvantaged%20communities> (accessed on 10 April 2021).
- [2] Hassan, S.; Saviour, M.; Perkar, S.; Augustine, T.; Ahmed, S.U.; Radhadevi, B.; Batool, S.; Abunqira, R.; Santos, E.D.; Strike, H. The Impacts of Home Confinement Due To Coronavirus (COVID-19) on Children: A Cross Sectional Survey Study, Mediclinic City Hospital, Dubai, UAE. *Am. J. Pediatr.* 2020, 6, 408–420.
- [3] European Commission. Digital Education Action Plan (2021–2027)|Education and Training. Available online: [https://ec.europa.eu/education/education-in-the-eu/digital-education-action-plan\\_en](https://ec.europa.eu/education/education-in-the-eu/digital-education-action-plan_en) (accessed on 27 April 2021).
- [4] Burke, J.; Arslan, G. Positive Education and School Psychology during COVID-19 Pandemic. *J. Posit. Sch. Psychol.* 2020, 4, 137–139.
- [5] Costado Dios, M.T.; Piñero Charlo, J.C. Face-to-Face vs. E-Learning Models in the COVID-19 Era: Survey Research in a Spanish University. *Educ. Sci.* 2021, 11, 293.