

Evaluate Students' Attitudes towards the Information Industry Chain of P.E. Based on Data Visualization Technology: A Cross-sectional Study

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Abstract

Based on data visualization technology, it expounds the attitude of Chinese college students to the P.E. information distance education industry. The research mainly uses attitude questionnaires to conduct cross-sectional surveys based on the Internet of Things, and uses data visualization technology to evaluate students' attitudes and opinions on informatized sports distance education. Our survey results show that in the online physical education courses carried out during the school blockade, students have a positive attitude towards informatized physical education, and the online teaching effect provided by the school is satisfactory. According to the vertical total score percentage of 16 measurement indicators, we can see that we strongly agree (364.22%), agree (439.37%), uncertain (422.28%), disagree (242.9%) and strongly disagree (130.854%). It can be seen that even if the school is blocked, students show a higher enthusiasm for information-based physical education.

Keywords: Data visualization technology, Distance education industry, Attitude, Cross-sectional surveys

I. Introduction

Due to the outbreak of the new coronavirus disease, all education and training institutions have been closed to prevent the spread and spread of the virus and protect the health and safety of citizens. The UNESCO report has shown that the educational function of schools has been severely affected by COVID-19. Almost all schools in nearly 196 countries/regions around the world have closed classes and switched to dialogue between teachers and students in the air, which will affect more than 1.6 billion people worldwide. Student [1].The Ministry of Education of China ordered all education units across the country to be closed in February 2020 to reduce the risk of virus transmission. Therefore, in such a severe situation, various educational institutions have turned to digital education, and the same is true for physical education. Some scholars pointed out that the new crown pneumonia epidemic has made it possible to innovate in teaching methods and make teaching more meaningful. Distance learning has a history of many years in the field of pedagogy. This has included mixed teaching modes and methods. This is to stimulate and make online teaching more attractive, practical and flexible, especially in the face of the new crown pneumonia epidemic is a public health problem [2, 3]. In the digital age, students generally hope that teaching methods will be more diversified, so as to arouse students' interest in learning, especially the application of digital media, breaking new models that have never appeared in traditional teaching methods. Studies have shown that by the fall of 2015, more than 6 million college students have registered for at least one online course, while the number of enrollments on physical campuses has increased and courses have decreased. Over-the-air learning has always been one of the most distinctive innovations in the history of American education, greatly alleviating illiteracy Quantity [4].Therefore, students' beliefs and attitudes of online learning will affect the effectiveness of online teaching. Especially under the influence of COVID-19, the traditional education model is closed and the shift to online learning has a great impact on students' emotions. Studies have found that students' emotional attitude, test scores, cognitive level, learning ability, classroom experience, etc. have a significant impact. Related to character [5]. In view of this kind of online sports digital teaching may bring many influences to students. This research evaluates the effect of online physical education based on the feedback of students. Therefore, our

research first understands students' learning preparation from their online distance learning experience and psychological journey, because under the traditional learning model, few people can understand that online sports learning can be done using digital media.

II. Materials and Methods

2.1 Data collection

The questionnaire uses the Likert scale (strongly agree=5, agree=4, uncertain=3, disagree=2, strongly disagree=1 for scoring). Conduct online surveys through the Higher Education Student Association. The survey will be conducted between October and December 2020. Participants were told that the answers were fair, objective, and secretive, and there was no monetary reward.

2.2 Data analysis

The collected data was analyzed by SPSS software (version 20), and the total score of variables was analyzed by description and independent sample T test. Express students' attitudes towards distance education based on data visualization technology. The Cronbach's α is 0.960 (as is shown in Table 1).

Table 1 Total scores of attitudes

N	DF	Sig	Mean	Median	Mode	SD	Minimum	Maximum	Sum
666	665	0.000	54.98	55.00	80	16.670	16	80	36620

2.3 Participants

In terms of demographic characteristics, the participants are mainly freshmen and sophomores studying online sports (as is shown in Figure 1). A total of 666 questionnaires were collected, including males (n=538,87.78%), females (n=128,19.22%), 18-20 years old (n=335,50.03%), 21-22 years old (n=331,49.7%), freshman (n=259,38.89%), sophomore (n=497,61.11%), urban (n=287,43.09%), rural (n=379,56.91%).

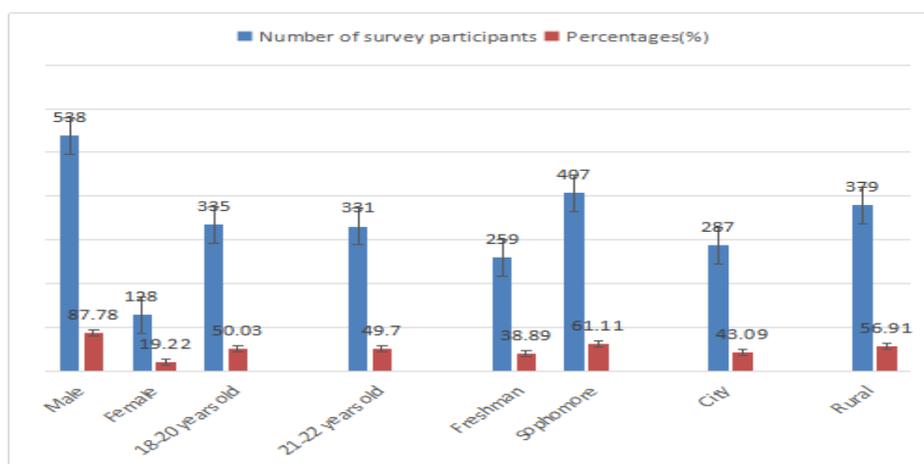


Figure 1: Basic Characteristics of Participants

III. Results

A total of 695 questionnaires were distributed in the study, and 666 questionnaires were finally recovered, with a ISSN: 0010-8189

recovery rate of 95.8%. According to the survey results, students have a positive attitude towards information-based sports distance teaching. For example: Degree of willingness to distance learning (255 (38.17%)), Proficiency in learning platform operation (272 (40.72%)), The flow rate of the Internet of Things in cities and villages is better to ensure remote physical education (238 (35.63%)), Degree of willingness to distance learning (241 (36.08%)), Physical exercise makes me feel happy and promotes good health (320 (47.9%)), Like to interact and discuss with teachers online (230 (34.43)), Online physical education can focus attention (255 (38.17%)), Questioning the effect of distance sports learning (64 (9.58))and Online physical exercise can not cooperate with classmates, very boring (95 (14.22)), It feels ridiculous to open online physical education (61 (9.13%)),Prefer traditional physical education methods (230 (34.43)). Please see Table 2 for specific attitude indicators.

Table 2 Percentages of students' distance sports learning attitude

	Very much agree (N(%))	Agree (N(%))	Uncertain (N(%))	Disagree (N(%))	Strongly disagree (N(%))
Proficiency in learning platform operation	255 (38.17)	272 (40.72)	121 (18.11)	16 (2.4)	4 (0.6)
Good IoT flow rate	206 (30.84)	238 (35.63)	160 (23.95)	41 (6.14)	23 (3.44)
Degree of willingness to distance learning	219 (32.78)	241 (36.08)	160 (23.95)	36 (5.39)	12 (1.8)
Online physical education can focus attention	236 (35.33)	255 (38.17)	118 (17.66)	43 (6.44)	16 (2.4)
Home environment is suitable for distance sports learning	216 (32.34)	207 (30.99)	140 (20.96)	85 (12.72)	20 (2.99)
Like to interact and discuss with teachers online	230 (34.43)	222 (33.23)	157 (23.5)	45 (6.74)	14 (2.1)
Physical exercise makes me feel happy and promotes good health	320 (47.9)	241 (36.08)	88 (13.17)	10 (1.5)	9 (1.35)
Online sports learning is just for credits	56 (8.38)	88 (13.17)	169 (25.3)	229 (34.28)	126 (18.86)
Poor interaction between online sports learning	62 (9.28)	135 (20.21)	190 (28.44)	174 (26.05)	16.02 (16.02)
Questioning the effect of distance sports learning	64 (9.58)	120 (17.96)	210 (31.44)	164 (24.55)	110 (16.47)
Prefer traditional physical education methods	116 (17.37)	230 (34.43)	233 (34.88)	57 (8.35)	32 (4.79)
Poor remote communication conditions, very anxious about online sports learning	78 (11.68)	116 (17.37)	230 (34.43)	154 (23.05)	90 (13.47)
Online physical exercise can not cooperate with classmates, very boring	95 (14.22)	170 (25.45)	198 (29.64)	130 (19.46)	75 (11.23)
Do not watch sports recording courses	70 (10.48)	119 (17.81)	186 (27.84)	192 (28.74)	101 (15.12)
It feels ridiculous to open online physical education	61 (9.13)	114 (17.07)	194 (29.04)	192 (28.74)	107 (16.02)
The quality of the sports video is very good	149 (22.31)	167 (25)	267 (39.97)	57 (8.35)	28 (4.19)

The results in Figure 2 show that students' attitudes towards distance online sports learning are on the rise. According to the vertical total score percentage of 16 measurement indicators, we can see that we strongly agree (364.22%), agree (439.37%), uncertain (422.28%), disagree (242.9%), and strongly disagree (130.85%).

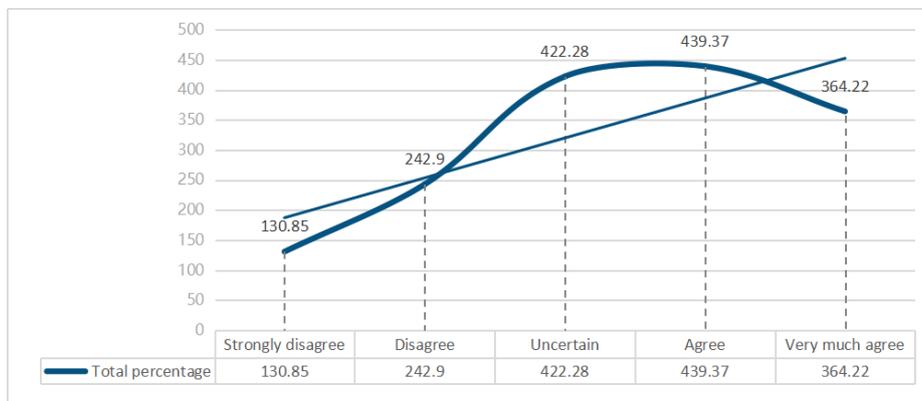


Figure 2: Total percentage of students' distance sports learning attitude

Figure 3 shows the students' proficiency in the operation of the learning platform. A considerable part of the students are very proficient in operating the remote online sports learning system. Some students said that most of the students were born after 1995 and have a strong ability to accept information technology since childhood, so there is basically no problem with the operation of the information platform, and they have a relatively strong interest in online physical education, which feels very novel.

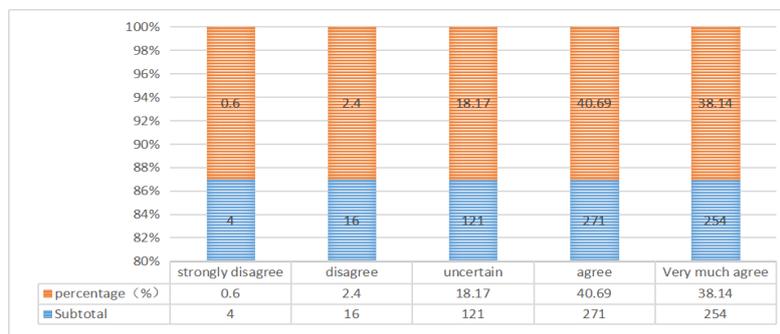


Figure 3: Students' proficiency in the operation of the learning platform

The statistical results show that the Internet flow rate of home sports learning is good, which better guarantees home sports distance learning. However, it is learned from interviews that the network is poor in remote mountain villages, and even some mountainous areas do not have the Internet of Things. As a result, students' learning is restricted, and it is even difficult to obtain the credits for the courses (Figure 4).

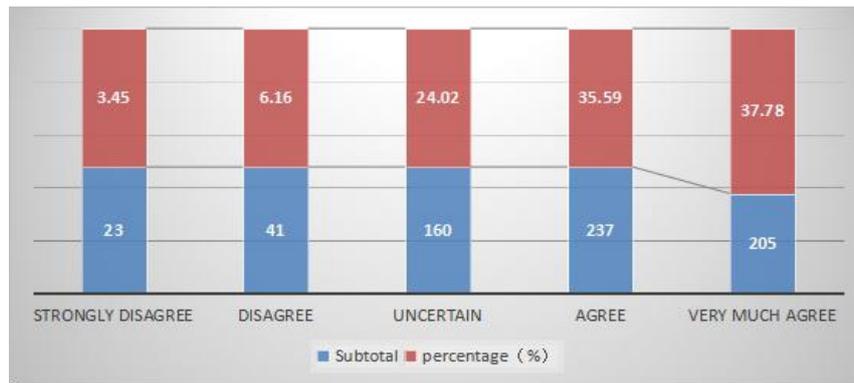


Figure 4: IoT network flow rate for home learning

Figure 5 shows the effect of online sports learning for students. Interviews with 12 physical education teachers and 21 students show that students are more focused at the beginning, but online sports is a practical virtual course, and it is difficult for a large number of classes Guarantee the quality of physical education, but most students have a strong interest in online physical education.

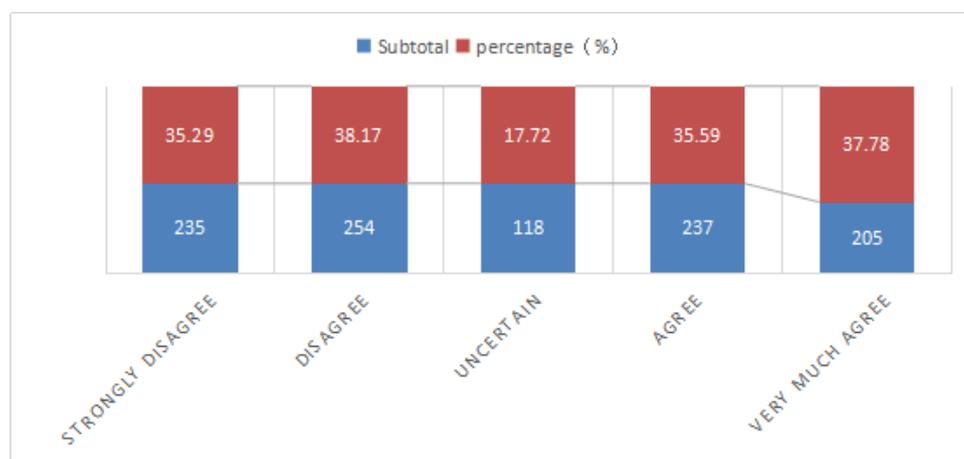


Figure 5: Online sports learning mental concentration

IV. Discussion

Studies have confirmed that the new crown pneumonia epidemic will bring many psychological problems to students (anxiety or depression and fear, etc.). For example, during the new crown pneumonia epidemic, some students said that it would take 13 hours to study online at home every day, not including homework time, which made the mental pressure very heavy, and the mood was good and bad, often because of a little Things quarreled with parents. But in this survey we found an interesting phenomenon, students have a higher enthusiasm for information-based distance physical education. Compared with information-based distance physical education, 34.43% of students prefer traditional physical education, while 34.88% are not clear. However, the feedback trend of online physical education is showing upward development (Figure 2).

Although the physical education environment is based on virtual teaching from traditional teaching special information, students feel very new to this virtual teaching method. I learned from student interviews that some students said that online sports distance teaching has lost the value recognition of sports identity, but they also said that online sports teaching feels very interesting, and they have never thought that physical education can also be taught in information Therefore, they feel very curious.

Some students said that they were taking online courses every day during COVID-19, including mathematics,

chemistry, computer basics, etc., and they felt very noisy, boring, and boring. But in the physical education class, I feel that the teacher is very kind. The physical education teacher can communicate with us and listen to our heart patiently. At the same time, it is very interesting to interact with the teacher in virtual sports. The only problem is that sometimes the Internet of Things There will be temporary obstacles.

Although our research was conducted in a specific state, the COVID-19 outbreak has caused fundamental changes in physical education methods. A large number of information technologies and various platform software have been introduced into physical education to lead to physical education models and methods. Innovative development. This teaching model and method show that students with an introvert personality are extremely fond of this online teaching model. I learned from student interviews that they feel that online sports learning is as safe and stable as at home, with their own independent space and place. However, for students from poor families, it is more difficult to pay for electronic equipment to ensure their studies, which may further cause some students to lose their educational activities during the epidemic. Therefore, the study found that students who deal with poor families are based on education security, especially in mountain villages and remote areas without network coverage.

V. Conclusions

During the COVID-19 outbreak, most countries have completely shut down school teaching systems, and schools at all levels and types have fully charged for online teaching. Online physical education has its particularity, especially online practical physical education courses, which have brought severe challenges to both teachers and students. For this reason, it is particularly important to evaluate the quality of online physical education. The results of our survey and research show that with schools closed, Chinese students' attitudes towards online physical education are satisfactory. However, in our research, it is difficult for students in remote mountainous areas and areas not covered by the Internet of Things to meet the needs of online sports learning, and the mood swings are large. Therefore, we suggest that the network coverage should be strengthened in remote mountainous areas. This is not only to meet the learning needs of students in this special period, but also to meet the needs of students to learn new knowledge through the Internet of Things (for example, MOOCs, Micro Lessons, etc.). At the same time, it is necessary to plan in time to discover the weaknesses of the school's education system, especially when some students have greater emotional fluctuations, which can relieve students' physical and mental pressure and design a suitable teaching framework for students.

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