



**CURRENT SITUATION INVESTIGATION
AND COUNTERMEASURE RESEARCH OF STUDENTS'
ONLINE LEARNING DURING THE EPIDEMIC PERIOD:
A CASE STUDY OF ZHEJIANG PROVINCE, CHINAⁱ**

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Abstract:

A survey of 538 students in 6 primary and secondary schools and colleges in Hangzhou, Ningbo and Jiaxing, Zhejiang Province, China has found: (1) Chinese schools suspended offline teaching in February-May, 2020 due to the novel coronavirus outbreak. All students studied online at home and 93% of them studied 2-7 hours a day online on average. Among all of them, students in primary schools spent least time online and college students spent most time. The science courses in middle school accounted for 46% of total studied courses, English accounted for 17%, and university major courses accounted for 21%. Furthermore, students spent 1-7 hours per day on watching TV and playing video games, and 1-4 hours on homework to review lessons. (2) After the end of the epidemic in China, more than 51% of students are still studying online for 1-4 hours a day, the epidemic situation has made online teaching in China popularized 10-20 years in advance, and students' online learning has become normal. (3) 32% of students like to study online, and they think that online class has the following advantages: numerous high-quality courseware that can be learned at any time anywhere, easy to communicate, save the time to go and from school, high learning efficiency, and online tutoring class charges are cheaper than offline ones. (4) The proportion of students who feel neutral and dislike the online study account for 56% and 9% respectively; they think online learning has the following problems: the online courses provided by schools are boring but they were forced to learn, and also have to clock in, which cannot bring the advantages of online education; the price of online tutoring course is very high; communication is not

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as easy as offline; the submission and correction of homework is more complicated than offline, and the learning effect is not good; students' eyesight is decreased rapidly; online examination is not allowed. (5) 21% of parents are very supportive of online teaching, 62% of parents think it is acceptable, 17% of parents do not support or oppose, the reason for opposition is that their children do not have enough self-control, online learning effect is more difficult to ensure, eyesight loss is faster and so on. Therefore, the following countermeasures are put forward: (1) students are ought to be guided to pay attention to online learning; (2) to strengthen the reform of teaching methods, improve courseware quality, control teaching time, and leave students time for notes to ensure recess; (3) reduce video and broadcast courses, advocate live courses, strengthen the communication and interaction between teachers and students; (4) reform to simplify the online homework submission method, explore a reasonable online examination model; (5) strengthens the home-school cooperation, encourages the supervision function of parents, and strengthens the online teaching results.

Keywords: Zhejiang, China; primary and secondary school and college students; epidemic period; online learning; investigation and analysis

1. Introduction

All the primary and secondary schools and higher institutions in China were closed during February to May, 2020 due to COVID-19. Therefore, the education department advocated that all regions should "*ensuring learning ongoing when classes are disrupted*" and actively carry out online teaching. During the epidemic period, in order to avoid the spread of the virus between people, and ensure students' learning can continue, online courses have been set up for students in various regions (Chou, 2020 ; Ling, 2021). Compared with the previous offline teaching mode, online teaching is a new experience. Most schools in China have never carried out large-scale online teaching before, which is also a huge challenge for teachers (Song et al., 2021).

In this extreme situation, primary and secondary school teachers and students are forced to have the first collision with online teaching, and an unprecedented large-scale online teaching practice began. Schools all over the country have carried out online teaching for 2-4 months (Li. et al., 2020; Huang & Kong, 2021).

The online teaching reform during the epidemic period has brought opportunities, after reasonable teaching design, mobile terminals can become effective learning tools for students; the reasonable teaching design is a necessary condition to improve the effect of students' online learning; strengthening the management of students' online learning process and learning status feedback can significantly improve the learning effect; effective online learning can significantly cultivate the quality of students' autonomous learning (Pan & Yao, 2020 ; Zhou et al., 2021).

In this special education environment, how to improve the efficiency of online teaching and cultivate students' autonomous learning attitude and protect students'

eyesight with electronic products has become a new teaching model in the new era and a new topic that human beings will coexist with the epidemic for a long time (Zhang & Shi, 2020). The sustainable economic development and upgrading require a large number of construction talents with ideals, knowledge and skills. "Strong youth makes China strong", to cultivate today's students is to prepare qualified construction talents for tomorrow (Lu, 2020).

Therefore, to investigate the situation of Zhejiang students' online learning during the epidemic, analyze the existing problems, put forward corresponding solutions and verify them through experimental results to let educators have a better learning audience feedback and learning tools product developers have a more specific user experience feedback for a more accurate grasp of the direction of change in the education mode. This has important social significance for Zhejiang's economic development, and also has important reference value for education and talent training in China and around the world under the new environment.

2. Survey of Online Learning During Epidemic Period in Zhejiang Province

2.1 Survey tools and respondents

The research group self-compiled a questionnaire of online learning for Zhejiang students in epidemic period, which includes 9 dimensions and 23 questions: basic information, tools of online learning, platform for online learning, content of online learning, effect of online learning, time for online learning, influence of online learning on eyesight, attitude to online learning, problems and suggestions on online learning. The questionnaire was compiled based on Liu Shuang (2020)'s *Questionnaire on Postgraduate Online Learning*, and the overall Cronbach's alpha coefficient is greater than 0.85.

A primary school, secondary school and a higher institution (college or university) in Hangzhou, Ningbo and Jiaxing, Zhejiang Province, China respectively (six schools in total) were selected to carry out anonymous questionnaire survey. A total of 538 questionnaires were distributed and 509 valid questionnaires were recovered, with a recovery rate of 94.61%.

2.2 Survey results and analysis

The investigation contents and results are as follows:

Table 1: Summary of online learning survey of Zhejiang students in epidemic period (N = 509)

Modular	Questions	Investigation items	Number of people (person)	Proportion (%)
Essential Information	1. Gender	Male	226	44.40
		Female	283	55.60
	2. Grade	College student	115	22.59
		Senior high school student	111	21.81
		Junior school student	189	37.14
		Grade 3-6 of primary school	94	18.47

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Tools for online learning	3. Selected tools (Multiple choice)	Tablet PC	228	44.83
		Notebook computer	307	60.34
		Desktop computer	101	19.83
		Smartphone	281	55.17
		Smart TV	94	18.53
	4. Which tool works better	Tablet PC	171	33.62
		Notebook computer	211	41.38
		Desktop computer	50	9.91
		Smartphone	68	13.36
		Smart TV	9	1.72
Online learning platform	5. Frequently used platforms (Multiple choice)	Dingtalk	421	82.76
		QQ	132	25.86
		WeChat	195	38.36
		Tencent Meeting	99	19.45
		other	72	14.22
	6. Which platforms are smooth and easy to use (multiple choice)	Dingtalk	353	69.35
		QQ	75	14.66
		WeChat	121	23.71
		Tencent Meeting	81	15.95
		Other	59	11.64
Online learning content	7. Online learning content at home during epidemic period (multiple choices)	Online teaching of various courses	412	81.03
		Online tutoring of various courses	287	56.47
		Extracurricular instruction	233	45.69
		Postgraduate entrance examination guidance	31	6.09
		other	13	2.59
	8. Online learning content after returning to school (multiple choice)	Online teaching of various courses	259	50.86
		Online tutoring of various courses	138	27.16
		Extracurricular instruction	235	46.12
		Postgraduate entrance examination guidance	48	9.48
		Other	55	10.78
The effect of online learning	9. The effect of online learning	Better than in the classroom, can learn at any time, can playback, save time on the road	193	37.93
		It is similar to offline class	129	25.43
		Not as good as offline classes	178	34.91
		Other	9	1.72
Online learning time	10. Daily online learning time at home during epidemic period (hours)	1-2	35	6.88y
		2-3	106	20.83
		3-4	149	29.31
		4-5	102	20.04
		5-7	117	22.99
	11. Daily online learning time at home after returning school (hours)	1-2	171	33.60
		2-3	124	24.36
		3-4	103	20.24
		4-5	62	12.18
		>5	49	9.63
	12. Daily average time of watching	1-2	187	36.74
		2-3	97	19.06

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	entertainment programs or playing video games (hours)	3-4	37	7.27
		4-5	13	2.55
		>5	175	34.38
	13. mDaily average time for homework and review (hours)	1-2	189	37.13
		2-3	213	41.85
		3-4	77	15.13
		4-5	15	2.95
		>5	15	2.95
	14. The course that takes most time online	English	86	16.90
		Chinese	37	7.27
		Math, Physics, Chemistry	235	46.17
Professional courses		105	20.63	
Public courses for postgraduate entrance examination		11	2.16	
Other		35	6.88	
Effects on eyesight	15. The impact of online learning on eyesight	It is a significant impact, and the eyesight drops very quickly	61	11.98
		The impact is a little significant	173	33.99
		The impact is limited	189	37.14
		Basically no impact	86	16.90
Attitude towards online learning	16. Students' attitude towards online learning	Supportive	165	32.42
		Neutral	285	56.00
		I don't like it very much, but I can't help it	48	9.43
		Dislike	11	2.16
	17. Parents' attitude towards online learning	Supportive	107	21.02
		Neutral	316	62.08
		Not very supportive	66	12.97
Opposition	20	3.93		
Existing problems and Countermeasures Proposal	18. Advantages of online learning (multiple choices)	Learn anytime, anywhere	434	85.27
		High quality courseware	197	38.70
		Cheaper than offline tutorial classes	145	28.49
		Easy communication	116	22.79
		Other	53	10.41
	19. Disadvantages of online learning (multiple choices)	The online courses in our school are boring, but we have to learn and clock in, which cannot reflect the advantages of online education	201	39.49
		Cross school high-quality courses need to charge, the school does not recognize	64	12.57
		Online tutoring courses are still expensive	92	18.07
		Communication is not as easy as offline	274	53.83
		Other	110	21.61
		20. Existing problems (multiple choices)	Homework submission and correction is more complicated than offline work	261
	Cannot test online		64	12.57
	The learning effect is not good		203	39.88
	Eyesight decreased rapidly		156	30.65
Other	68		13.36	

The analysis of the survey data in Table 1 is as follows:

(1) Gender

The effective respondents were 509, 44.4% of them are males and 55.6% of them are females.

(2) Grade

There are 94 students in Grade 3 to Grade 6 of primary school, 189 in junior middle schools, 111 in senior high schools and 115 in universities.

(3) Tools for online learning

Most students choose laptops, smartphones and tablets as their tools for online learning. Around 33.62% of students think that tablet computers are better to use when learning online, and 41.38%, 9.91%, and 13.36% believe laptops, desktops, and mobile phones are better respectively, in addition, 1.72% think both tablet computers and notebook computers are good.

(4) Platform for online learning

Students can choose more than one answer in this question. According to the table data, the learning platform with the highest frequency is Dingtalk and QQ. Around 69.4% of students thought that Dingtalk is more smooth and useful in online learning; 53% of students thought QQ is better; 23.71% choose Wechat; 15% believe Tencent Meeting is better; and 11.64% of students chose other platforms, such as Plaso, Xueersi, New Oriental Cloud Class, etc.

(5) Content of online learning

Students can choose more than one answer in this question. Since they could not attend school during the epidemic, 81.03% of Zhejiang students study every course online, 56.47% are online tutoring for each course, and the proportion of extracurricular counseling is 45.59%; 6.03% is postgraduate study guidance, 2.59% is other courses. After returning to school for offline classes, the proportion of online learning and online tutoring for each course has decreased significantly, which is 21.41% and 27.16% respectively. The proportion of extracurricular counseling also accounts for 46.12%. Besides, 10.78% of them are postgraduate tutoring and 10.78% are other.

(6) Effect of online learning

About 37.93% of the students think online learning is better than offline class in classroom. They can learn at any time and can playback and they can save time on the way to study. Meanwhile, 25.43% of students think online learning is similar to offline class, 34.91% think online learning is not as good as offline class, 4% think that online learning can save time but make people lazy; furthermore, their eyesight has been damaged and students with less self-discipline also play video games.

(7) Time for online learning

During the epidemic, students in Zhejiang Province cannot attend schools, the daily average online learning time of Zhejiang students is different: 6.9% of students study online for 1-2 hours, 20.83% of students study online for 2-3 hours, 29.31% of students study online for 3-4 hours, 20.04% of students study online for 4-5 hours, 22.99% of students study online for 5-7 hours. That is, 93% of students have an average online

learning time of 2-7 hours a day, primary school students spend least time on online learning, and the students in universities spend the most time, and the middle school students ranked in the middle. After returning school, Zhejiang students have changed their daily average online learning time: 33.60% of students study online for 1-2 hours, 24.36% of students study online for 2-3 hours, 20.24% of students study online for 3-4 hours, 12.18% of students study online for 4-5 hours, 9.63% of them spent more than 5 hours on online study. Primary school students still spend the least time on online learning, whereas the students in universities spend the most time. Therefore, the epidemic has popularized the online teaching in China 10-20 years in advance. In the late stage of the epidemic, more than 51% of students still study online for 1-4 hours a day, and students' online learning has become a normal phenomenon.

(8) Time for doing and reviewing homework

The time of doing and reviewing homework for Zhejiang students: 37.13% of them spent 1-2 hours, 41.85% of them spent 2-3 hours, 15.13% of them spent 3-4 hours, 2.95% of them spent 4-5 hours. In addition, 3.02% of students stated that the review time of each day is less than one hour, which is relatively less. The results show that most students spent 3-4 hours on review after class.

(9) Time for watching entertainment or playing video games

In addition to online learning with the help of equipment, students also use the equipment to relax in the learning process: 36.64% of students spent 1-2 hours watching entertainment programs or playing video games every day, 19.06% of them spent 2-3 hours, 7.27% of them spent 3-4 hours, 2.55% of them spent 4-5 hours, and 34.38% of them spent more than 5 hours.

(10) The most time-consuming course

Furthermore, each student spent different time on different courses and has different emphasis: 16.90% of the students said that the most time-consuming online course is English, 7.27% of students said it is Chinese, 46.17% of students said it is mathematics, 20.63% of them said that professional courses were most time-consuming, 2.16% of respondents said that public course for postgraduate takes the most time to study online, 6.88% of students pointed out that they spent similar learning time online for each course.

(11) The influence of online learning on eyesight

After studying online at home during the epidemic, 11.98% of students believed online learning had a great impact on eyesight and their eyesight decreased rapidly, 33.99% of students thought that online learning had a little influence on their eyesight, 37.14% of students stated that online learning had little impact on their eyesight, 16.90% of students thought that online learning had no effect on their eyesight. After the investigation of the specific eyesight before and after online learning, the results show that most students' eyesight did not fluctuate much, but many have eye fatigue. A small number of students have a slight increase of 50 to 100 degrees of eye-glasses, and some students' degree fluctuates between 25-50 degrees.

(12) Attitude towards online learning

The results of the questionnaire survey show that 32.33% of the students support online learning, 56.00% of them are neutral, 9.43% of them say they don't like it but there is no other choice, and 2.16% of them say they don't like it.

The results of the survey on parents showed that 21.02% of parents expressed support for online learning, 62.08% of parents feel neutral, 12.97% did not support, and 3.93% of parents expressed opposition.

From the analysis of the questionnaire survey results, there are several reasons for students to take the above attitudes towards online learning. Some students think that online learning has both advantages and disadvantages. Some students think that it is difficult to focus on online learning and easy to be distracted, their self-control ability is challenged, their learning efficiency is low, lack of interaction, and long-term staring at the screen made their eyes uncomfortable and easy to damage eyesight. Another part of students think that the online learning mode is more convenient, can watch playback at any time for reviewing, check the missing parts and make up for the mistakes, and learning is not limited by time and place.

From the perspective of parents, most parents think that long-term online learning affects the children's eyesight. In addition, their children's learning effect is not good as offline. They worry that their children may visit other websites during learning, and the learning atmosphere is not strong, so children are easy to do other things during study. Some parents think online learning saves time and is more convenient.

(13) Advantages and problems of online learning

Most (85.27%) of the respondents thought that online learning can be studied anywhere, it is convenient and can save time to go and from school; 38.70% of students think that online learning of high-quality courseware is more, 28.49% of students think that online extracurricular tutoring class charges are cheaper than offline, which are the advantages of online learning.

Meanwhile, 39.49% of students think that online courses are boring but have to learn, and they have to clock in, which cannot reflect the advantages of online education; 12.57% of students think that cross school high-quality courses are expensive, and their schools do not accept them; 53.83% of students think that online teacher-student communication is not as easy as offline; 51.28% of students think that online learning homework submission and correction are more complicated than offline, 3.88 think online learning is more complicated than offline and cannot bring good study results, 30.65% of them stated that online learning damaged their eyesight rapidly. These are the main problems in online learning.

(14) Suggestions for online learning

The survey subjects have put forward many suggestions on online learning, and we summarize as follows:

- Hope the number of courses can be less and the courses can be more precise. The teaching time can be shortened, the rest time between classes can be extended, and

students can be allowed to write notes to make them have rest and reflect on each other;

- Improve the form of class, and make a difference from offline teaching, and find the suitable mode for online teaching;
- The communication between teachers and students needs to be improved, interaction should be more active and feedback should be timely;
- The assignment arrangement of online learning needs to be improved, and the method of homework approval can be more convenient;
- The interest of the classroom can be strengthened to attract students' attention, and make them more focused on the classroom and improve the learning efficiency;
- The stability of online learning platform needs to be improved, which will waste the time of students and teachers;
- It is better to reduce the video and broadcast classes as much as possible and change them to live courses, which can strengthen the communication and feedback between teachers and students, so as to facilitate students to understand and grasp the consolidated knowledge points.

(15) Summary of investigation

The main advantages of offline teaching in the background of epidemic situation:

- 1) Based on the analysis of the advantages of online teaching, we can understand that compared with the traditional offline teaching mode, online teaching has the following advantages: first, online teaching breaks the time and space limitation of the past offline teaching, so that students can learn anytime and anywhere. During the online teaching, teachers and students can interact with each other with the help of Internet-based tools, which solves the problem that students unable to study in school during the epidemic. Teachers do not need to go to school to teach, but also can avoid cross infection problems. Meanwhile, students can watch video repeatedly through the playback function of online teaching video if they do not understand during their study at home. When students encounter learning problems, they can also ask online questions to teachers, which effectively solves the problem of "students dare not raise questions during face-to-face courses". Teachers can also respond online after receiving the questions raised by students, so that the students' questions can be effectively answered.
- 2) The online teaching method has more choices. In the past teaching mode, teachers often adopt a single teaching method, which leads to the dull classroom atmosphere, students cannot have a strong interest in classroom learning. In contrast, during online teaching, teachers can choose different teaching methods flexibly, so as to enhance teaching flexibility. Teachers can use the video and animation function of online teaching to show some common graphics in their lives, so as to mobilize the students' various senses and make students have interest in knowledge. Teachers can use an object as reference during the course of explanation, then change their position, and then ask students to tell their position every time. In this form, teachers can present the original abstract and

difficult to understand knowledge points in the face of students in an image, intuitive and interesting way, and help students understand and remember quickly, thus achieving good teaching results.

- 3) Online teaching can urge teachers to update their teaching ideas and teaching methods. Compared with the traditional offline teaching mode, online teaching has its own unique features, but it also means that teachers need to learn more knowledge and skills. For teachers, to successfully complete online teaching tasks and ensure teaching quality, we need to master the use of modern information technology. For example, teachers need to know how to make short videos, and master the methods of online interactive communication, online video live broadcast and online search for teaching resources, and also know how to use various teaching tools to attract students' attention. This is a challenge and an opportunity for teachers. Because in this case, teachers have to carry out analysis and research around modern teaching equipment, teaching methods and teaching ideas, so that teachers can improve their abilities in all aspects, which is very helpful for the development of teachers' own quality.

The main problems in teaching on the background of epidemic situation are as follows:

The network is a double-edged sword, and the online courses based on the Internet are also the same. During the epidemic, teachers used online teaching software to teach students online. Although they could meet the students' learning needs and meet the requirements of "stop class but not stop learning" proposed by the Ministry of Education, this does not mean that online courses have no disadvantages. In fact, if the teachers cannot effectively control and make reasonable use of online courses, the final teaching effect may be unsatisfactory. Specifically, according to the investigation and research, the following aspects are the disadvantages of online teaching in the context of epidemic situation:

A. It is difficult to locate the role of teachers

Many teachers did not use the online broadcast before the online teaching, so they encountered some problems in the teaching process, such as unable to determine whether their voice can be heard by students, or whether the students are listening to the class seriously. Some teachers have adopted some methods of "Internet celebrity" to attract students' attention, such as using some popular online words or using some means of live broadcast on the Internet to activate the atmosphere. Although this approach has attracted the attention of students to some extent, it also makes people doubt about the identity of teachers. In people's hearts, teachers are often very sacred occupations, and are admirable and respected. In the process of online teaching, teachers take some abnormal means to attract students' attention, which makes people look at the teacher's profession differently. Thus, during online teaching, the role orientation of teachers becomes a big problem.

B. Students' self-control is insufficient

During online teaching, although teachers can use cameras to focus on students' learning state, the effect of this kind of supervision and observation is limited. For example, some students may be sitting in front of the camera and seem to be listening to the class carefully, but in fact, their eyes may be looking elsewhere or other content. For example, some students in the classroom, browsing Microblog, Wechat, even read novels, play games and so on. In the case that teachers cannot fully supervise, students often have difficulty to form a strong consciousness, which directly affects the final teaching effect.

C. It is difficult for teachers and students to communicate with each other

Many teachers in the online teaching activities, in order to maintain the necessary classroom order, will take the students to ban measures. In such teaching activities, students can only passively listen to the arrangement of teachers and passively accept the contents of the teacher's explanation. Over time, students will feel that the classroom is very boring and lose interest in learning. At the same time, teachers and students cannot form effective interaction, which causes students to be unable to timely feedback to the teachers, and teachers cannot grasp the students' learning situation in time. Although some teachers allow students to ask online questions, they will choose to answer the students' questions after class because of the excessive questions they ask or the teachers keep up with the teaching progress. This also leads to the lack of effective interaction and communication between teachers and students in the classroom.

D. Students' eyesight is affected badly

During online learning, students need to face the mobile phone, tablet or TV screen for a long time, which is not good for their eyesight health. If students don't know how to use their eyes reasonably and keep a scientific distance, they are easy to get myopia. In serious cases, some students even suffer from eye diseases, which is very bad for their health.

3. Conclusions and Suggestions

3.1 Conclusion

Through the survey of 538 students in six primary and secondary schools and universities in Hangzhou, Ningbo and Jiaxing, Zhejiang Province, China, it is found that:

A. In February-May 2020, China's schools suspended offline classes, and 2-4-month online teaching was conducted. All students were online at home, and 52% of them took part in online tutorial courses for more than 6 months; 93% of the students' study online for 2-7 hours a day, primary school students spent least time on online learning time, and college and university students spent most time. The math and chemistry in middle school accounted for 46% of online studied courses, English accounted for 17%, and university major courses accounted for 21%. Meanwhile, they spent 1-7 hours on watching TV and playing video games every day, and 1-4 hours on finishing and reviewing homework.

B. In the late stage of the epidemic, more than 51% of students studied online for 1-4 hours a day. The epidemic has promoted the popularization of Chinese online teaching 10-20 years in advance, and students' online learning has become a normal phenomenon.

C. The students who like to study online accounted for 32%. The advantages of online courses include: many high-quality courseware that can be learned at any time, easy to communicate, save the transportation time, and have high learning efficiency. Online tutoring class charges are cheaper than offline ones.

D. The proportion of students who are neutral and dislike online learning is 56% and 9% respectively, and it is believed that there are the following problems in online learning: online courses in are boring but students are forced to learn, and they have to clock in, which cannot reflect the advantages of online education. The cost of inter-school high-quality courses is not cheap, and many schools do not accept their credits; the price of online tutoring courses is still very high; communication is not as easy as offline; the submission and correction of homework submission is more complicated than offline, and the learning effect is not good; the eyesight is decreased rapidly; and online examination is not allowed.

E. 21% of parents support online teaching, 62% of parents think it is acceptable, 17% of them are neutral. The reason for the opposition is that they think their children are lack of self-control, online learning effect is difficult to guarantee, and their eyesight is decreased rapidly.

3.2 Suggestions

Therefore, in view of the problems in online learning, we put forward the following improvement countermeasures:

A. Guide students to pay attention to online learning

In order to improve the effect of online teaching, teachers need to guide students to pay attention to online learning. Specifically speaking, in the process of teaching, teachers can work with other subject teachers and head teachers to set goals for students, strengthen moral education for students, and make students aware of the difficulties of online teaching during the epidemic period, so as to stimulate students to cherish online learning opportunities.

B. Integrating teaching resources and giving full play to the advantages of online teaching

There are many high-quality teaching resources on the Internet. In the specific teaching process, teachers can effectively integrate these resources, select the resources that can guarantee the teaching quality, and effectively show the online teaching process to students, so as to enrich the teaching content, expand the learning knowledge, and give play to the advantages of online teaching. With the help of life teaching situation, teachers can also help students form a comprehensive cognition of knowledge points, so as to strengthen students' learning effect.

C. Optimize teaching methods and ensure the quality of online teaching

We should optimize teaching methods, improve the quality of courseware, control teaching time, set time for students to take notes. In the process of online teaching, teachers can choose many methods. In the specific teaching process, in order to ensure the quality of teaching, teachers can make a reasonable choice of different teaching methods. Teachers can adopt the hierarchical teaching method, assign different levels of learning tasks to different students, pay attention to the individual differences of students as much as possible, follow the principle of teaching students in accordance with their aptitude, and ensure that every student can learn something. Teachers can assign practical tasks. With the help of differentiated teaching methods, teachers can take care of each student's learning needs as much as possible, so as to ensure the overall teaching effect. In addition, teachers can also adopt flipped classroom, electronic whiteboard and other forms of teaching. Based on the flipped classroom teaching concept, teachers guide students to preview around the knowledge points of the textbook, and require students to independently complete the tasks assigned by teachers. After that, in the online teaching activities, teachers analyze the existing problems of students.

We should reduce the recording and broadcasting class, advocate the live class, strengthen the teaching interest, communicate and interact with teachers and students, and give timely feedback. In the flipped classroom mode, students become the main body of learning activities, while teachers play the role of teaching guide, which is very beneficial to the cultivation of students' learning autonomy. Help students learn knowledge in an intuitive way.

D. Reform and simplify the way of homework online marking, and explore a reasonable online examination mode.

E. Attach importance to home school cooperation and consolidate online teaching achievements

Playing is the nature of every primary school student, so in the absence of teacher supervision, parents need to play their own supervision function. Specifically, during online teaching, teachers should keep in touch with students' parents, guide parents to urge their children to listen to the class seriously, and seriously complete the homework assigned by teachers. Through effective home school cooperation, strengthen the supervision and restraint of students, at the same time, create a good learning environment for students, and promote the enhancement of students' learning effect.

Conflict of Interest Statement

The authors declare no conflicts of interests.

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References

- Huang, X. (2021). Empirical Study on online teaching in vocational schools during the epidemic. *Vocational technology*, (01), 13-18.
- Li, E., Xu, Y., Pan, Q., Sun, H. (2020). Research and practice of presupposition and generation of online teaching resources for new crown pneumonia epidemic. *Journal of Wuhan Polytechnic*, 19 (02),14-18.
- Lin, Z. (2021). Apply online education platform to realize "no stop of class" under epidemic prevention and control. *Secondary School Teaching Reference*, (09), 60-67.
- Liu, S. (2020). *Online Study of Postgraduate Students of X University Based on Ubiquitous Learning Theory*. Bohai University.
- Lu, Y. (2020). Organization of online teaching platform in the novel coronavirus pneumonia epidemic period: A case study of Special Education Career Academy in Zhejiang. *Science Mass (Science Education)*, (06), 184.
- Pan, Y & Yao, Z. (2020). Practice and reflection of online teaching in epidemic period based on "MOOC + Tencent class". *Journal of Chuzhou University*, 22 (03), 100-109.
- Qiu, L. (2020). Select the starting mode of "online teaching" to the teachers who teach online in the period of anti-epidemic. *Primary school edition of monthly Teaching Journal (comprehensive)*, (03), 21-29.
- Song N., Zheng, Z., Zhou, Y. (2021). The current situation and development of online teaching in primary and secondary schools in Western China: Based on the perspective of big data analysis. *Education and Teaching Research*, 35 (02), 49-61.
- Zhang, Z. & Shi, M. (2020). Some thoughts on online teaching in colleges and universities. *Science and Education Literature*, (12), 52-54.
- Zhou, M., Li Y., Liu, N. (2021). Online teaching research and practice in Colleges and Universities under the background of epidemic situation. *Computer Education*, (03), 64-68.

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