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Investigation and Countermeasures Analysis of Online Education for Primary and Middle School Students in Anhui Province

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Abstract

With the development and application of various network learning platforms, learning feedback has become important information about the success of education. Therefore, big data can be used to process the feedback information to get whether a new education mode is in line with the popular taste. This paper collects, analyzes, and processes data on the use of electronic equipment for primary and middle school students in Anhui Province, and explores the online education model for primary and middle school students during the epidemic period. At the same time, we think about the optimization and innovation of China's education model in the post-epidemic era. From different perspectives, we analyze the new education model in the post-epidemic era by means of text mining, correlation, and K-Means, so as to create a suitable new form of education.

Keywords

A New Model; Online and Offline Integration; Primary and Middle School Students; A New Form of Education.

1. Initial Preparation

1.1. Survey Content and Research Framework

The main contents of this survey include: the basic situation of the equipment and use of electronic equipment for primary and secondary school students in Anhui Province, the basic situation of online and offline learning, the main influencing factors, whether to equip and use electronic equipment for efficient learning, etc.

1.2. Sampling Design

1.2.1. Survey Objects and Scope

The survey objects are primary and middle school students in Anhui Province, who receive compulsory education in Anhui Province.The research scope is Anhui Province, which is further divided into second-tier cities, third-tier cities and fourth-tier cities according to the level of economic development.

1.2.2. Determine the Sample Size of the Formal Investigation

The sample size under simple random sampling is determined in the following order: (1) specifies the acceptable relative allowable level r; (2) determines the reliability coefficient$Z_{\frac{\alpha}{2}}$; (3) obtains the estimated coefficient of variation of the characteristics measured in the target populationC_r; and (4) applies the formula to calculate the required sample size.

$$n^* = \frac{(Z\alpha_{/2})^2 (C_r)^2}{r^2} \quad (1)$$

ISSN: 2688-9323

The survey hopes to achieve 3.5% accuracy at a 90% confidence level ($Z_{\frac{\alpha}{2}}$ ±=1.64), assuming a coefficient of variation of 50%.

$$n^* = \frac{(1.64)^2(0.5)^2}{0.035^2} = \frac{2.6896 \times 0.25}{0.001225} \approx 549$$

The average recovery rate of field questionnaire distribution is 75%, and the actual questionnaire distribution required for this survey is:

$$n^* = 549 \div 0.75 = 732$$

1.2.3. Sampling Method

In order to ensure the scientific nature and precision of sampling, we adopted different sampling methods for pre-survey and formal survey.In the process of pre-investigation, the simple random sampling method is mainly used.In the formal survey, we adopted a combination of stratified sampling and two-stage sampling.

1.2.4. Questionnaire Design

According to the survey content, the questionnaire mainly includes the following aspects: First, the grade distribution of primary and middle school students and the basic situation of the use of electronic equipment.Second, primary and secondary school students use electronic equipment for learning.Third, the comparison and influencing factors of online learning and offline learning between primary and middle school students, such as self-control, adaptability, online and offline learning effect comparison, can not concentrate on the main force, poor learning atmosphere, can not keep pace with the pace of teachers.Fourth, for primary and middle school students to wear electronic equipment views or suggestions.

2. Descriptive Statistics Analysis of Respondents and Cognitive Status

2.1. Basic Information of Respondents

2.1.1. Education Level

In the survey, the distribution of grades is shown in the figure, 27% of students in grade 1-3,5% of students in grade 4-6, middle school students accounted for 22% of the total respondents, and high school students accounted for 46%. According to the data, grades 1-3 and high school students accounted for the highest proportion, with fewer students in grade 4-6.

2.1.2. Main Electronic Equipment Used

Among the surveyed groups, the use of electronic devices is shown in the figure: 85.37% of students use mobile phones to surf the Internet, 39.02% use computers, 21.95% use tablets, 24.39% use smart wearable devices, and only 9.76% use learning machines.From the data analysis, it can be concluded that the learning machine is not favored by students because of its single function, and the mobile phone, as the most commonly used communication tool, integrates a variety of functions, which is quite popular with students.

2.2. Students Using Electronic Devices

2.2.1. Cognition of Electronic Devices

Of all respondents, 90.2% of students could control themselves and use electronic devices to assist them in their learning, while only 9.76% of students could not increase their knowledge with electronic devices.The vast majority of students can skillfully use electronic equipment, which is a good start, knowledge acquisition is no longer limited to the classroom and books,

ISSN: 2688-9323

students can use the rest of the time to pursue their own hobbies, learn more cultural knowledge, accumulate more deposits.

2.2.2. Control the Cognition of the Use of Electronic Devices

Among all respondents, 43.9% of students controlled their desires, 31.71% controlled themselves according to their instinctive reactions, and only 24.39% cannot control their use of electronic devices.This phenomenon shows that today's electronic products are not completely able to help students learn, for some poor self-control students, electronic products will become a stumbling block to learning, and most students swing, according to the occasion instinct control, this phenomenon will let them gradually converted after losing supervision, differentiation into the other two kinds, the instability is now the hidden danger of electronic products.

2.2.3. Cognition of Online Education

Among the respondents, 80.49 students could adapt to the online learning of electronic equipment, while 19.51 students could not adapt to the teaching of electronic equipment.Based on today's education status has to the trend of network course development, to adapt to different education environment is one of the essential skills, most students have been able to adapt to, the rest of the students must change their ideas and ideas, further keep pace with The Times, knowledge regardless of boundaries, obtain nature also no way.

2.2.4. Cognition of the Comparison between Online Teaching and Offline Teaching

The survey results show that 7.32% of students think that online teaching is superior compared with offline teaching, 12.2% think that there is little difference between online teaching and offline teaching, and 80.49% think that offline teaching will be better.It can be seen that offline teaching is still the mainstream teaching method. Students can often focus on the classroom atmosphere and focus more on learning knowledge, while online teaching is less supervised by teachers, and students are easy to lose attention.

2.2.5. Cognition of E-teaching

As shown in the figure, 75.61% of students think that using electronic products will make them inattention and poor learning atmosphere, 34.15% think that using electronic products is poor, 36.59% think that it is difficult to keep up with the pace of teachers, etc. Other reasons account for 7.32%.It can be seen that inattention and poor learning atmosphere are the difficult problems faced by today's E-teaching, which deeply affect the students.

3. Data Analysis Methods and Data Results

3.1. Column Analysis

Table 1. Use of electronic products (a)

	ability	deny	amount to
The surveyed students	**3700**	**400**	**4100**
percentage	90.24%	9.76%	100%

From the table, can use electronic products to assist their learning number of students more than not students, the overall difference is huge, the reason may be that the students encounter the problem using electronic equipment, laid the foundation for subsequent learning, and some students' parents are afraid of students rely on electronic devices deliberately reduce the frequency of using electronic products, cause children cannot use electronic equipment.

ISSN: 2688-9323

Table 2. Use of electronic products (b)

	ability	deny	depending on circumstances	amount to
student	1800	1000	1300	4100
percentage	43.9%	31.71%	24.39%	100%

According to the table, although most students can control their own use of electronic devices, there are also many students who cannot control it.Convenient learning path has both advantages and disadvantages, unable to control their own heart will become an obstacle.While electronic devices can be used for entertainment, it is most important to prioritize at different stages of life.

Table 3. Online and offline teaching comparison

	Online teaching is better	Offline teaching effect is better	all one to	amount to
student	300	3300	500	4100
percentage	7.32%	80.49%	12.2%	100%

The vast majority of students think that offline teaching is better, far more effective than online teaching. The reason is that the current teaching method is mainly in the school, the network teaching lacks the atmosphere, students tend to drowsy, lax attention, and in the classroom with the supervision of teachers, students are more likely to pay attention.

3.2. K-Means Clustering

The cluster analysis results were obtained from SPSS, and the four types of college students were obtained. We need to name and describe the four class groups. See Table for the specific classification.

Table 4. The specific classification

dependent variable	A class	B class	C class
Basic use	6	10	10
self-command	4	10	7
Use the product	4	10	10
Adapt to the product	2	6	10

3.2.1. Class A Student Group

The use of electronic devices by class A student group only stays in entertainment, can not obtain knowledge from them, self-control ability is poor, can not resist the temptation of electronic devices without human supervision, let alone use electronic devices to learn knowledge, can not adapt to the teacher's network teaching environment.

3.2.2. Class B Student Group

Class B students will use electronic products to browse books and indirectly improve themselves. Their resistance to electronic devices is general. Whether using electronic products is affected by the environment, they are subjectively willing to use electronic devices to learn, and can also adapt to teachers' online teaching.

ISSN: 2688-9323

3.2.3. Class C College Students

Class C students can skillfully use the equipment at hand to help them learn, control their own behavior, take the initiative to use products to acquire knowledge, and fully adapt to the online teaching rhythm.

3.2.4. Comprehensive Analysis

For 4100 questionnaire cluster analysis, A, B, C, four types of students, three groups specific proportion of see figure, class B students accounted for most, followed by class C students that the current student cognition of electronic products, although subjectively willing to learn, but can be spontaneous initiative to learn, class A students cannot adapt to today's teaching environment, the number of electronic products is still stay in entertainment, relaxation level, need to change ideas.

3.3. Text Mining Analysis

Text mining is a kind of computer technique that extract valuable information and knowledge from text.As its name suggests, text mining is about extracting data from text.Based on this method, this paper proposes a data mining (Date Mining) -based method.

Text mining mainly goes through the following steps: ① text preprocessing,② text mining,③mode evaluation and representation.If the assessment meets the demand, this model is stored for the user, return to the previous stage, correct and improve, and continue in the next round of exploration.

4. Countermeasures and Suggestions

4.1. Increase the Reform and Innovation of New Education Methods

According to the latest release of the content of education reform, the traditional educational concept, education and teaching system are closely related to the productivity needs of various social industries.In order to welcome the arrival of the new era, we need to accelerate the reform of digital education, comprehensively promote the "Internet + education", and create a new form of digital education.In view of online education in the post-epidemic era, education also needs breakthroughs in its mission, concepts and practices. Such breakthroughs in education are mainly made from the following aspects.Due to the uncertainty and interoperability barriers of the network itself, network learning has many disadvantages.But there is no denying that network education can indeed broaden its vision and increase its knowledge to a certain extent.This is incomparable to offline education.With the advent of the information age, the society needs diversified talents, and only book knowledge has been difficult to live a good life.Therefore, it is necessary to exchange education and information technology, increase the investment in network public education facilities, and use electronic whiteboard and multi-functional laboratory to increase students' multi-faceted culture learning.

4.2. Promote the Educational Functions at All Levels

4.2.1. Government Aspects

1) Strengthen the reform and innovation of the education system

The reform should have the original intention of education and fully realize the significance of digital education reform.No matter the national innovation-driven, industrial upgrading, digital campus breaking through data barriers and cultivating innovative high-quality talents, it is necessary to accelerate the all-round digital reform of digital education, which has become the trend and trend of education development driven by knowledge and information economy, and also the strategic development requirement of education power in the new era.Therefore, the government needs to increase the reform and innovation of the education system, refine the

ISSN: 2688-9323

specific reform plan, deeply analyze the educational situation and social environment, and reasonably apply digital education to daily teaching activities.The specific scheme can be reflected in the certain unified education assessment of professional online educators, new education network course training, further upgrading of educational equipment, strengthening the management and improvement of the education system, implementing the rural network era, and promoting the regional network system of "one county, one province and one district".

2) Transparency of the management mode

The education management mode needs to be transparent, the government needs to make digital education open and transparent, use the network to achieve open and transparent education, teaching and social practice activities, facilitate social supervision to put forward opinions, and facilitate timely adjustment of relevant policies.On the network instant feedback perception of people from all walks of life feeling evaluation.Greatly increase the correlation between schools and enterprises, and the cohesion between schools and students.For the establishment of "open and transparent" complaint boxes for the management of major schools, the cooperation of university activities with large social merchants, and the request for some valuable suggestions conducive to the institutionalization and network of education.

4.2.2. School Aspects

1) Reasonable use of electronic equipment

From the survey, primary and middle school students, especially mobile phones, it is convenient for teaching, schools can make full use of electronic equipment, in the study of students 'mobile phone unified management, put an end to students addicted to mobile phones, mobile phones in class, on the one hand, convenient students to find information, on the one hand, reduce students' dissatisfaction, let students understand that school does not prohibit the use of electronic equipment, banned is addicted to electronic devices affect learning.

2) Increase the use of network teaching

Schools should hold regular teacher training meetings to promote communication between new and old teachers.Let young teachers learn from teaching experience, and also let old teachers learn how to use electronic equipment for teaching work.Nowadays, the classroom is basically equipped with electronic teaching equipment, but some teachers can not use it reasonably, which requires the communication and learning between teachers.At the same time, primary and secondary schools should set up online teaching platforms to become the second teaching classroom, store authoritative teachers' lecture materials, and urge students to use them.Let the students check the leakage to fill the gap, better to achieve the effect of review.

4.2.3. Parents' Side

1) Pay more attention to your children

Most parents still have their inherent thinking that schools can manage education well.Parents are their children's first teachers, and in some things, parents' education is far better than school education.It is difficult for schools to pay attention to the personal growth of every student, and parents need to supplement them.The questionnaire shows that students expect parents to increase the management of their children's learning, control their entertainment time, and educate them to learn.In combination with online education, persuade children to make clear the focus, conduct more offline classroom learning, do not leave doubts and then conduct online learning.Because for primary and middle school students, online learning is mostly self-study.During the period of self-study, the parents' control scope has been narrowed.

2) Support online learning to a certain extent

With the Internet developing rapidly, parents should keep up with the trend of The Times and support some online education.Give children enough time to online learning and develop

ISSN: 2688-9323

interest.When learning, supervise or use other ways to prevent children's learning inertia and online surfing behavior.Understand a full range of different children to learn things, find their own children's interests, try to develop their children's interests.Let the child in their favorite field can be unscrupulous creation.

4.2.4. Social Aspects

1) R & D investment in electronic equipment for primary and secondary school students

Encourage scientific and technological innovation to favor education, invent and create more equipment to promote students' growth and learning, and give students a good learning environment, learning space and learning atmosphere.All kinds of private enterprises join the education industry, pay more attention to education, increase investment in education, and actively promote education equity.

2) Strengthen the socialization of educational information

Increase the attention to the left-behind children, and create an equal learning environment as much as possible. The society should also assume its own responsibilities to assist, invest and encourage educational construction.Together to make the education industry run smoothly and train social talents.We will transparent education-related information, strengthen the publicity, education and supervision of the public, so that people from all walks of life can understand the current situation of education and contribute to the cause of education.

4.3. Future Exploration of the New Innovative Mode of Network Education based on Literature Discovery

4.3.1. Online and Offline Integrated Education Mode

It has been more than a year since the development of the epidemic, which further shows that various industries in the society are also facing further recovery, and the education industry has always been an important social topic.Under the development of this situation, we clearly realize that the traditional education model can not well integrate the social development, so the online and offline integration mode has become the first choice of the education model in the new era.Therefore, this model should not only be recommended in colleges and universities, but also in primary and secondary schools. Some new terms such as online learning and online education should also be widely accepted by the public. At the same time, in the future, this mixed model will drive more teachers to improve the knowledge system and increase students' interest in learning.Future educators should combine the arrival of the new era of education driven by the network, through the improvement of the pre-class preview system, the consolidation of the after-class knowledge system, and the learning of ordinary teaching in class.The system of subsequent evaluation adds some new education models to the classroom of primary and secondary schools.At the same time, in response to the majority of teachers to play a certain use, so that it will not cause a waste of teachers.

4.3.2. "Internet + Education" Distance Wisdom Teaching

In view of the economic trauma brought by the epidemic, the epidemic has been in the post-epidemic era under the rescue of the people. Under the high expectations, the education industry has been deeply hit by the epidemic.So for reshaping the education system, constantly increasing the frustration ability of education, put forward the spirit of "suspension of teaching, suspension of school".At the same time on the teaching of "learning" "teaching" "management" 3 D system of a proper positioning.The mode of "Internet + education" distance wisdom teaching reflects the cross-time and cross-regional teaching limitations.Change the traditional teaching mode, to create a new and suitable new form of education.Create a better educational environment for future students, and give high-quality teaching strength.Combined with the convenience given by the network era, the integrated mode of network teaching, offline teaching and online complement is redefined, starting from the learning degree of students at

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all stages, to supplement doubts and answer difficulties at a certain stage.At the same time, driven by the network, a new relationship between students and the classroom is established, the students' passive power is turned into the initiative, the new normal of student-centered and output-oriented quality revolution is gradually constructed, and better driving teaching no longer only stays in the dimension of "teaching", but more about the control of quality.

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