

Study on Some Factors Affecting the Online Education and Teaching Quality of University Teachers

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Abstract. Objective: In order to explore the characteristics of online teaching and the basic theories of pedagogy and management, thus finding out some factors that influence the quality of scientific and reasonable online teaching; **Method:** By using linear regression analysis, 2433 college teachers were investigated in four dimensions: platform mastery, knowledge construction, emotional input and organizational implementation; **Results:** through conducting Pearson linear correlation analysis on 11 independent variables listed in the questionnaire, it was found that the Pearson simple correlation coefficient among them was 0.786, namely $|p| = 0.786$; after carrying out the sample K-S test ($D = \max |f(x) - g(x)|$), it was concluded that the set of data appeared to be normal distribution; through regression analysis, it was found that the determination coefficients of the first model and the second model were 0.019, 0.017, respectively, besides, the coefficients transformed to 0.596 and 0.594; **Conclusion:** good four dimensions are helpful to improve the quality of online education and teaching of university teachers.

Keywords: university teachers; online education; teaching quality

1 Introduction

The sudden outbreak of COVID-19 in 2020 has made significant changes in people's social life, work and learning. Under this condition, online teaching ushered in the developing opportunity by virtue of its advantages of breaking through time and space, convenient and timely feedback. Therefore, it quickly becomes the main way of education, and will coexist with traditional teaching for a long time in the future. Facing online teaching, many university teachers tread as if on thin ice, so they often spend several times as much time as traditional teaching. However, there is still a barrier to the fantasy Internet space exists over there, which causes the impossibility in forming the classroom atmosphere, not to mention the formation of emotional communication between teachers and students. Compared with the teachers of training institutions who are familiar with it, university teachers appear to be dwarfed. Whether the university teachers can catch up with this change to grasp the online teaching strategy in time, and to improve the quality of online teaching are new challenges faced by most university teachers.

As the main participants in implementing the teaching activities, teachers dominate the whole teaching process, so they are decisive factors that affect the quality of teaching[1]. In existing literature about the influencing factors of traditional teaching quality, almost every paper

discusses the factor of teachers. Whether in traditional teaching or online teaching, teachers are always the key factors that affect teaching quality[2]. In the 2020 Annual International Forum on Higher Education, professor Zheng Qiang pointed out that the root cause of technological innovation comes from the foundation of basic knowledge, only by laying a solid foundation of basic knowledge can we have technological innovation and scientific innovation, that is to say, only by laying a solid foundation of teachers' knowledge can we get the high teaching quality after implementation [3]. After the outbreak of COVID-19, the improvement of online teaching quality has attracted the attention of many universities at home and abroad, so colleges and universities at all levels have made beneficial explorations and practices on it. The quality of online teaching is a new teaching model full of inquiry meaning, which aims to cultivate students' innovative spirit and research ability[4]. In addition, it emphasizes the combination of teaching and modern teaching technology, so putting forward higher requirements for teachers. On the one hand, teachers must have strong practical ability in teaching and a sense of innovation[5]. At the same time, they must also have the spirit of continuous learning. On the other hand, teachers need to invest more time and energy in changing the teaching methods of online teaching[6]. Moreover, teachers are required to have stronger ability in controlling the class, so as to deal with unpredictable problems during the implementation of the teaching process. Therefore, in the process of online teaching, in addition to some basic requirements for teachers, it is also necessary to master the platform application and the change of teaching methods in the new environment [7]. Accordingly, on the basis of research and empirical investigations conducted by previous scholars, this paper puts forward the following hypothesis: the main factors that influence the quality of teachers' online teaching include four parts: platform mastery, knowledge construction, emotional input and organizational implementation [8][9][10], If these four factors all have a positive correlation between online education and teaching quality of university teachers.

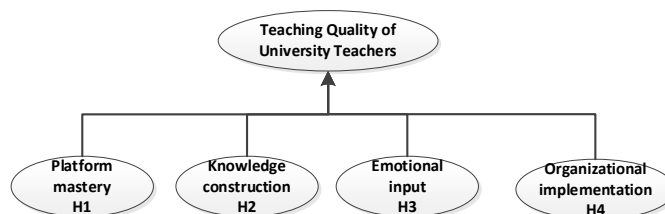


Fig. 1. Teaching Quality of University Teachers Promote the theoretical model of influencing factors

2 Data sources and research methods

2.1 Basic information

The questionnaire data used in this paper are obtained through random sampling and snowball sampling, relying on the comprehensive platform of online education, that is, the UMOOC, to distribute questionnaires to 2,641 teachers in colleges and universities across the country, of which 2,433 questionnaires are valid, with a recovery rate of 92.12%. The four control variables of teachers' gender, age, professional title and subject category are set in the questionnaire, and the details are as follows: in terms of gender, the number of female teachers is more than that of

male teachers in the survey, with the proportion of 70.1%; As for age, the surveyed university teachers are mainly concentrated in young and middle-aged teachers, of which teachers aged between 40 and 50 accounts for 52.7%; in terms of professional titles, most of the university teachers in the survey are lecturers, accounting for 52.5%; The subjects taught by these teachers are basically balanced, teachers only with engineering background are slightly higher than those with other backgrounds, accounting for 38%. Statistics of basic information samples (see Table 1 for details).

Table 1 Statistics of basic information samples

Types of variables	Contents of variables	Number of teachers	Proportion %
Gender	Male	707	29.1
	Female	1726	70.9
Age	Under the age of 40 years old	332	13.6
	40-50 years old	1282	52.7
	50-60 years old	817	33.6
	Over the age of 60 years old	2	.1
Professional titles	Professor	86	3.5
	Associate professor	777	31.9
	Lecture	1277	52.5
	Others	293	12.0
Subject category	Engineering	924	38.0
	Arts	567	23.3
	Management	389	16.0
	Fine arts	328	13.5

2.2 Descriptive statistics of the independent variables

Through consulting some literature and documents, this paper modifies the questionnaire for many times, and finally adjusts it to four variables: platform mastery, knowledge construction, emotional input and organizational implementation, with a total number of 11 factors; The platform mastery [6] is generated by conducting weighted average on the data of two influencing factors: the equipment operation H1a and the operating environment H1b. Knowledge construction [11] is produced by conducting weighted average on the data of three influencing factors: the concept processing H2a, the compared satisfaction H2b as well as the improvement and optimization H2c. Emotional input [12] is generated by carrying out weighted average on the data of four influencing factors data: the teaching state H3a, the students' feedback H3b, the reflection and improvement H3c, and the teaching effect H3d. Organizational implementation [13] is generated by conducting the weighted average on the data of two influencing factors: the organizational learning H4a and the learning guidance H4b.

The questionnaire is designed according to the point-to-point way in Likert scaling, so as to make clear about the values for measurement. Taking the 5-point scaling to measure the teaching quality of university teachers' online education, the respondents only can select their answers from five options: "completely dissatisfied", "a little dissatisfied", "dissatisfied", "a little satisfied", "very satisfied". These five points are assigned 1-5 points respectively, so as to know the actual situation of respondents through the score [14]. The questionnaire survey data on

online education and teaching quality of university teachers are analyzed by the tool SPSS20, and the descriptive statistics are carried out through four dimensions of platform mastery, knowledge construction, emotional input and organizational implementation. The statistical results show that the mean value of platform mastery is 4.37, which is at the upper level, indicating that teachers attach the most attention to the degree of platform mastery; The mean value of knowledge construction is 4.09, which is at the upper level, indicating that teachers are very confident in mastering degree of the structure of teaching knowledge; The mean value of emotional input is 3.89, which is at the medium level, indicating that teachers are satisfied with their emotional input in online teaching; The mean value of organizational implementation is 3.99, which is at the upper level, showing that teachers are very satisfied with online education in the teaching process. As the mean value of teachers' overall participation is more than 4 points, it can be concluded that university teachers have a very high recognition on the quality of online education and teaching. But the standard deviation is also very high. Even though there are still obvious differences in the quality of online education among university teachers, they think highly of the quality of online education and teaching on the whole. Descriptive statistics (see Table 2 and Figure 2 for details).

Table 2. Descriptive statistics

	Number of samples	The minimum value	The maximum value	Mean value	Standard deviation
Platform mastery	2433	1	5	4.37	0.88
Knowledge construction	2433	1	5	4.09	0.92
Emotional input	2433	1	5	3.87	1.06
Organizational implementation	2433	1	5	3.99	0.96
Overall situation	2433	1	5	4.04	0.97



Fig. 2. Descriptive statistics

2.3 Correlation coefficient analysis

The Pearson correlation coefficient is used to measure whether two data collections are on the same line, which is used to measure the linear relationship [15]; If the linear correlation analysis demonstrates that there is normal distribution between two variables, and the two variables are

selected randomly, there still presents the explicit liner relationship, indicating that product moment correlation coefficient exists between them, so the formula (see formula 1) is mainly used to represent the Pearson simple correlation coefficient.

Formula 1: calculating formula of Pearson simple correlation coefficient

$$p = \frac{N \sum x_i y_i - \sum y_i \sum x_i}{\sqrt{N \sum x_i^2 * (\sum x_i)^2} * \sqrt{N \sum y_i^2 * (\sum y_i)^2}} \quad (1)$$

Table 3. Correlation

	1	2	3	4	5	6	7	8	9	10	11
1	1										
2	.786**	1									
3	.580**	.600**	1								
4	.492**	.474**	.526**	1							
5	.648**	.657**	.656**	.601**	1						
6	.136**	.139**	.168**	-0.032	.133**	1					
7	.455**	.429**	.476**	.869**	.558**	-0.026	1				
8	.584**	.654**	.524**	.489**	.623**	.040*	.457**	1			
9	.443**	.423**	.472**	.788**	.541**	-0.002	.762**	.423**	1		
10	.508**	.501**	.603**	.624**	.652**	.079**	.637**	.492**	.600**	1	
11	.536**	.535**	.534**	.773**	.619**	.040*	.729**	.487**	.725**	.568**	1

** . Showing significantly positive correlation at the 0.01 level (bilateral).

*. Showing significantly positive correlation at the 0.05 level (bilateral).

1→Equipment operation 2→Operating environment

3→Concept processing 4→Comparison satisfaction

5→Improvement and optimization 6→Teaching state

7→Students feedback 8→Reflection and improvement

9→Teaching effect 10→Organizational learning

11→Learning guidance

This paper makes a Pearson linear correlation analysis on 11 independent variables adopted in the questionnaire on online education and teaching quality among university teachers. Pearson linear correlation analysis is usually used to quantitatively describe the direction and close degree of linear correlation between the two quantitative variables. The analysis results of 11 independent variables in the data by using SPSS20 (see Table 3 for details) can tell us that the correlation coefficient between the equipment operation and the equipment operating environment represents the maximum value in the table. The Pearson simple correlation coefficient between them is 0.786, namely the $|p|=0.786$; In the correlation coefficient of the 11 independent variables produced with 55 pairs of correlation coefficients, 50 pairs of correlation coefficients of them have obtained “* *” as the significant correlation coefficient, and two pairs of correlation coefficients “*” work as the relatively significant correlation coefficients; The value of correlation coefficient $|p|$ are extremely strong between 0.8 and 1.0; The strong correlation is found between 0.6 and 0.8; The moderate correlation exists between 0.4 and 0.6; The weak correlation exists between 0.2 and 0.4; 0.0-0.2 means very weak correlation or

unrelated. Furthermore, there are 45 items whose value of correlation coefficient $|p|$ is greater than 0.4 in Table 4, with the proportion of 81.82%, which shows that these data have a strong correlation (see Table 3 for details).

2.4 Reliability analysis

Formula 2: calculating formula of Cronbach's reliability analysis

$$a = \frac{k}{k-1} * \left(1 - \frac{\sum S_i^2}{\sum_t^2}\right) \quad (2)$$

Reliability analysis refers to the degree of consistency of the results obtained when the repeated measurements are conducted by using the same method for the same object. The main purpose of reliability analysis is one of the important indicators of the consistency and stability of the measurement results and data, which also can be interpreted as the embodiment of the reliability of measurement results. Therefore, this paper uses Cronbach's α coefficient (see Formula 2 for details) to measure the reliability of indicators related to teachers' satisfaction with the quality of online education; The original assumption is that when the value of α of samples is greater than 0.6, the reliability statistical is basically used. It is best assumed that the value of α of samples is greater than 0.8 [15]. As can be seen from the Table 4 credibility statistical analysis, the overall scale reliability coefficient value of this data is 0.904, whose value is much greater than 0.8, so the scale is in the range of best use.

Table 4. Reliability statistics

Cronbach's Alpha	Number of items
.904	11

2.5 Data validity analysis

Validity is the effectiveness, referring to the degree to which a measuring tool or means can accurately measure what needs to be measured. In this paper, the SPSS20 measuring tool is used to measure the changing degree that is required in the measurement, and the factor analysis is adopted to carry out the validity analysis of the questionnaire structure. The KMO test and the Bartlett's sphericity test are performed on variables by using the SPSS20 statistical software. When the coefficient of KMO test was greater than 0.5 and the coefficient of the last item Sig. in Bartlett's sphericity test table is less than 0.05, the factor analysis on this set of data can be conducted on the basis of meeting the two conditions mentioned above [20]. By conducting the KMO and Bartlett tests on this set of data by using SPSS20 statistical software (see Table 5 for details), we can get that the value of KMO is 0.921, which is much greater than 0.5. And the value of Bartlett sphericity test is more significant, the Sig. is less than 0.05, so the data is suitable for factor analysis. After performing the structural analysis on the variables of this set of data and making the correlation, the structure diagram shown in figure 1 can be obtained. The common factor description diagram shown in figure 3 can be obtained by conducting the factor analysis on the data using SPSS20. The ordinate in the figure is set to the eigenvalue of the common factor, and the abscissa is set to the number of components of the common factor (see

Figure 3 for details). From the analysis, it is not difficult to know that the changes in the first 7 eigenvalues are more obvious compared to the other variables, which are in a stable state after directly decreasing from 6.244 to 0.543, and the latter 11 eigenvalues gradually changed from 0.543 to 0.112. Therefore, it can be concluded that the first three common factors play a very significant role in the information description of the original variables, while the influence of the latter nine common factors on the information description of the original variables shows a slowdown.

Table 5. The tests of KMO and Bartlett

The Kaiser-Meyer-Olkin measurement with enough samples.		.921
	Approximate chi-square	19466.498
Bartlett's sphericity degree test	df	55
	Sig.	.000

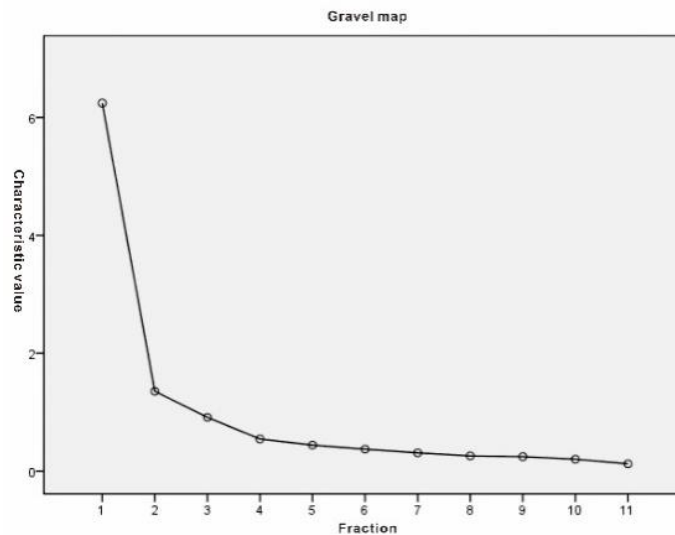


Fig.3. Common factor description diagram

2.6 Linear regression analysis

Regression analysis refers to a statistical analysis method for determining the quantitative relationship of interdependence between two or more variables. It is an analysis method [16] to make mathematical processing on a large number of statistics, and determine the correlation between the dependent variables and independent variables by using the principle of data statistics, so as to establish a regression equation with good correlation, and then extrapolating to predict changes of the dependent variables in the future [17]. Linear regression is a statistical analysis method that uses mathematical statistical regression analysis to determine the interdependent quantitative relationships between two or more variables, which is widely used in many fields. Its form of expression form is $y = w'x + e$ (w in the formula represents the co ratio, and x represents the dependent variable; e refers to the normal distribution with the error following the mean value of 0) [17]. In this paper, the online teaching data of university teachers

in China are tested by using the software SPSS20 to perform the sample K-S test ($D=\max |f(x)-g(x)|$). It is concluded that this group of data belongs to normal distribution (see Table 6 for details), and the data is processed by linear regression analysis method.

Table 6. Kolmogorov-Smirnov test for single sample

	N	Normal parameter ^{a,b}		The most extreme difference			Kolmogorov-Smirnov Z	Asymptotic significance (bilateral)	
		Mean value	Standard deviation	Absolute value	Positive	Negative			
Basic information	1	2433	1.71	0.454	0.448	0.261	-0.448	22.11	0
	2	2433	2.2	0.66	0.283	0.283	-0.244	13.96	0
	3	2433	2.73	0.713	0.293	0.232	-0.293	14.43	0
Platform mastery	4	2433	2.33	1.343	0.218	0.218	-0.162	10.76	0
	5	2433	4.31	0.938	0.285	0.23	-0.285	14.07	0
	6	2433	4.43	0.827	0.322	0.247	-0.322	15.87	0
Knowledge construction	7	2433	4.23	0.887	0.255	0.193	-0.255	12.59	0
	8	2433	3.88	0.963	0.229	0.158	-0.229	11.3	0
	9	2433	4.16	0.906	0.266	0.176	-0.266	13.1	0
Emotional input	10	2433	3.69	1.192	0.235	0.137	-0.235	11.6	0
	11	2433	3.77	1.034	0.211	0.149	-0.211	10.41	0
	12	2433	4.18	0.995	0.264	0.204	-0.264	13	0
Organizational implementation	13	2433	3.84	1.009	0.232	0.147	-0.232	11.44	0
	14	2433	3.9	1.05	0.267	0.147	-0.267	13.15	0
	15	2433	4.08	0.867	0.244	0.185	-0.244	12.06	0

a. The test distribution is normal distribution. b. It is obtained through calculating the data.

1→Gender 2→Age 3→Professional title 4→Subject category

5→Equipment operation 6→Operating environment

7→Concept processing 8→Compared satisfaction

9→Improvement and optimization 10→Teaching state

11→Students feedback 12→Reflection and improvement

13→Teaching effect 14→Organizational learning

15→Learning guidance

Before the linear regression analysis, the collected data is analyzed through SPSS20, and the analysis results are used to conduct the linear regression modeling on the influencing factors of teachers' online education and teaching quality. The model is completed by two types of models: the first one is the basic model and the other is the change model with 11 variables. These two models are shown in the linear regression analysis model about the influencing factors of teachers' online education and teaching quality (see Table 7 for details). The influence targeting the control variable model is a unitary linear regression equation, and the determination

coefficient of this model is 0.019. The second model is the regression equation which includes 11 independent variables, and its determination coefficient is 0.596; After adjusting the determination coefficient, its determination coefficient transforms to 0.596. In conclusion, it is obvious that the increase of adjusted variables does not have much influence on the change of coefficient, so it is concluded that the second model is suitable for affecting the online education and teaching quality of university teachers [18] [19].

Table 7. Regression analysis model

Dependent variables	Quality of online education and teaching of teachers						
	Model	Basic model			Variable change model		
		β	t	Sig.	β	t	Sig.
Control variables	Gender	.256	13.894	.000	-.027	-1.106	.269
	Age	.086	6.529	.000	.042	1.485	.138
	Professional title	.074	1.808	.071	.012	.462	.644
	Subject category	.034	1.693	.091	.006	.691	.490
Independent variables	H1a				.087	4.589	.000
	H1b				.103	4.511	.000
	H2a				.052	2.996	.003
	H2b				.135	5.292	.000
	H2c				.014	.713	.476
	H3a				.007	.788	.431
	H3b				.038	1.764	.078
	H3c				.008	.534	.593
	H3d				.003	.141	.888
	H4a				-.044	-2.853	.004
	H4b				.510	23.921	.000
		R ²		.019			.596
	Adjusted R ²		.017			.594	
	Vale of F		11.707			300.19	

From the regression analysis model, it can be seen that gender, age, professional title and subject category have a certain degree of weak positive correlation with the influencing factors of online education and teaching quality of university teachers. While there is a certain positive correlation among platform mastery, emotional input, knowledge construction, organizational implementation and the factor of online education and teaching quality of university teachers.

3 Enlightenment and suggestions

After taking comprehensive consideration on the study results, several inspirations are shown as follows:

First of all, teachers should be familiar with all the functions of the platform and master the skills in operating platform, so as to improve the quality of online teaching. Online teaching is the behavior for users to teach and learn on the platform. Traditional courses are conducted in the classroom, where teachers and students can communicate freely to form a good learning atmosphere. In this environment, there exists a strong psychological indication. As students face

the teacher directly, they can feel the teacher's supervision at any moment. At the same time, direct communication and interaction with learning partners contribute to students' common progress and learning, thus improving the quality of teaching. Through the design of functional modules, the platform tries its best to make up for the functions of traditional classroom and exert the advantages of platform as much as possible. The existing online learning platforms are more mature in the design of functional modules, such as the Tencent classroom, the DingTalk, the Chaoxing.com, the Xuetaangx.com and so on. A fully grasp of the platform not only helps to form an online learning atmosphere, but also can publish a large number of learning resources through the platform to improve the richness of online classes. The use of big data on the platform can reflect the learning process more accurately, thus making it possible for accurate teaching evaluation and timely supervision of illegal learning. The results of this study also clearly show the importance of platform mastery in improving the quality of teaching, which inspires us that we must fully master the platform operation in online teaching, in order to maximize the quality of online teaching.

Secondly, good emotional input is required in online teaching to help improve the quality of online education and teaching. In the new era, college students are familiar with some methods for transmitting fragmented information such as TikTok, so their instinctive entertainment needs lead to confrontation on the learning motivation when facing electronic products, which makes many students can not fully devote themselves to online learning. Good emotional input helps to improve the quality of online teaching, besides, the role of emotional input can improve the teaching quality has been widely recognized in traditional teaching. As individuals of life, students have equally strong needs for emotion when compared with simply accepting the knowledge. Teachers' distinct emotion can leave them with a deep impression, so as to help them distinguish right from wrong. In this way, not only can solve the problem of "weariness in learning" with students, but also can cultivate students' interests in "happy learning". In online teaching, good emotional input of teachers is conducive to students' continuous learning behavior, thus improving the quality of teaching.

Thirdly, excellent knowledge construction is beneficial to improving the quality of online education and teaching of teachers in colleges and universities. President Xi Jinping has talked about the standard about "four virtues" of a good teacher, which clearly points out that good teachers should have profound knowledge, and classroom teaching with high quality cannot be separated from the good knowledge construction of teachers. Teachers should have a solid foundation and a wide range of knowledge. Whether it is traditional teaching or online teaching, teachers' good knowledge construction is the basic guarantee of teaching quality.

Fourthly, great organizational implementation contributes to improving the quality of online education and teaching of university teachers. This study shows that reasonable teaching design and teaching implementation on this basis will help students to achieve teaching goals faster and easier, so that improving teaching efficiency and teaching quality. Teaching implementation is a specific process in teaching, the self-control ability of students in online learning is weaker than offline learning. Therefore, in the implementation of online teaching, we must fully consider this factor and focus on improving students' attention in some aspects like teaching design, PPT production, case selection, exercises design and so on. Teachers should provide guidance plans according to students' performance, so students can make clear the teaching contents. In the teaching process, through students' classroom performance and the use of technical means such as data analysis, teachers can timely grasp the actual situation in students'

learning and flexibly adjust the teaching process, and pay attention to students' feedback after class, so as to continuously improve teaching quality and promote the online teaching.

4 Conclusion

This paper discusses four factors that affect the online education and teaching quality of university teachers, namely, platform mastery, knowledge construction, emotional input and organization, to help university teachers find the right direction in improving teaching quality in the future. The study results show that: firstly, good platform mastery is conducive to improving the quality of online education and teaching of university teachers; Secondly, good emotional input is beneficial to improving the quality of online education and teaching of university teachers; Thirdly, good knowledge construction can improve the quality of online education and teaching of university teachers; Fourthly, good organizational implementation benefits to improve the quality of online education and teaching of university teachers.

It should be noted that there are still many limitations in this study: firstly, this paper is limited to the analysis of influencing factors on teachers' teaching quality in scenarios of online education and teaching, which does not make a complete discussion on other comment indicators and student factors; Then, the study objects in this paper are mainly some Chinese teachers in colleges and universities at home, without any foreign teacher, this is one of the limitations of this questionnaire; In further study, the students and teaching managers who participate in the online teaching should also be included in the scope of the questionnaire.

References

- [1] B Jie, Y Zeyuan. Study on the Construction of Cooperative Subject in School Curriculum Implementation-From the Perspective of Synergetic Theory, *Journal of National Academy of Education Administration*. 2020.05: pp76-81
- [2] L Sen, Z Lan, Z Shu, WANG Tianping. Building the Index System and Model of Teaching Quality Assessment in Teacher Education. *Journal of Southwest University(Social Sciences Edition)*. 2020, 46(06) : pp82-90
- [3] Z Qiang, Thoughts and Practice on building and strengthening undergraduate course Ideological and Political Education. 2020 International Forum on Higher Education Annual Meeting, Zhengzhou, China.
- [4] Y Xiaohong, Z Haijun, Z Xin. Characteristics and Enlightenment of Online Teaching in Colleges and Universities during the Epidemic-An Analysis Based on Online Teaching Quality Reports and Online Teaching Cases, *e-Education Research*, 2021, 42(10) : pp48-62
- [5] C Yan. Research on the Current Situation of Teaching Innovation and Influencing Factors of Young University Teacher. *Journal of Huzhou University*. 2021, 43(07) : pp45-76
- [6] Z Cailan, W Xin, S Shusheng. Analyzing the Characteristics of High-performing Online Teachers in Primary and Secondary Schools: Investigation and Research Report III on Online Teaching in Primary and Secondary Schools in Jiangsu Province. *Journal of East China Normal University(Educational Sciences)*. 2022. 40(04) : pp45-60

- [7] K, Murray. The Covid-19 pandemic and its effects on teacher education in England: how teacher educators moved practicum learning online. *European Journal of Teacher Education*,2020. Volume 43, Issue 4. pp.542-558.
- [8] Z Lijie, Y Yong. Current situation, problems and Countermeasures of teaching quality assurance system in local undergraduate colleges and Universities .*China Adult Education*, 2019.22:pp45-47.
- [9] W Hongyan, Z Jin, Construction of Evaluation Standard and Evaluation System of Undergraduate Teaching Quality of Tertiary Faculty. *China Agricultural Education*, 2016. 05:pp43-49
- [10] Y Ye, Problems and Countermeasures of teaching quality assurance system in Colleges and Universities. *Western China Quality Education*, 2016.24:pp33-39
- [11] Z Xiaopei, Application of emotional input in Teaching.*China Education Innovation Herald*,2009.02:pp84-88.
- [12] A Liebermann,K Erdelt. Virtual education: Dental morphologies in a virtual teaching environment. *Journal of Dental Education*,Volume 84, Issue 10. 2020. pp:1143-1150.
- [13] M Jing, Research on the influence mechanism of College Students' learning investment in mixed teaching environment-from the perspective of teaching behavior. *Distance Education in China*,2020.02:pp57-67.
- [14] J Lindsey. Thomas. Teaching content and thematic analysis using PostSecret submissions. *Communication Teacher*,2020. Volume 34, Issue 2:pp147-152.
- [15] Z Qingyuan, C Qingyuan, Psychological Tendency Law of Respondents of Statistical Questionnaire and Its Application. *Statistics & Decision*,2018.03:pp34-38.
- [16] L Zhao, L Zhiwei, Based on improving Cronbach α Questionnaire design strategy based on coefficient. *Contemporary Education Research and Teaching Practice*,2016.04:pp173-174.
- [17] W Luni , T Xing, W Fangfang W. Factor analysis on the influencing factors of private car ownership in various provinces of China. *Economic Outlook the Bohai Sea*,2019.04:pp167-168.
- [18] H Jianping, G Siyuan, H Qingxu, H Chunyang, Z Lei. Evolution of City Size Distribution in Chengdu-Chongqing Urban Agglomeration over the Last 40 Years: A Kolmogorov-Smirnov Test-Based Rolling Sample Regression Approach. *Economic Geography*,2019.08 :pp59-67.
- [19] C Xiaoyan, R-Studio Application in multiple regression analysis-Taking the relationship between tourism development and economic growth in Shanghai as an example. 2017 4th International Conference on Simulation and Modeling Methodologies, Technologies and Applications (SMTA 2017),P348-354,Time: December 29, 2017 Venue: Sapporo, Japan.
- [20] T Wei, H Liangjian, H Yuan, L Rui, L Keai L. Research on measures to improve college students' classroom attendance based on multiple regression analysis. *Textile and Apparel Education*,2019.02:pp110-114.