

The Empirical Analysis of Curriculum Quality Evaluation Based on Students' Evaluation of Teaching

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ABSTRACT

The data of curriculum quality evaluation based on students' evaluation of teaching contains learners' perception of curriculum quality is helpful to provide reference for the improvement of curriculum quality. The evaluation system of curriculum quality should be built around ten evaluation dimensions, such as teaching objectives, subject frontier, case teaching, teacher literacy, classroom discussion, teaching methods, teaching courseware, information technology, teachers' Q & A, curriculum ideological and political. Taking the students of school of physics and electronic information of Nanchang Normal University as the research object, and the sample size of curriculum quality evaluation is 5443, the Pearson correlation analysis is carried out on ten evaluation dimensions, and the correlation coefficient is 0.770, which indicates strong positive correlation. A regression model with ten evaluation dimensions as independent variables and curriculum satisfaction as dependent variables is established. The resolution of the model is 77.4%, which can predict curriculum satisfaction, and which has theoretical support for teachers to pay attention to the curriculum quality and improve the curriculum quality. It emphasizes that teaching department should pay attention to the effect of evaluation results on the continuous improvement of curriculum quality. It is suggested that a substantial and effective mechanism for continuous improvement should be established.

KEYWORD: students' evaluation of teaching, curriculum quality, empirical analysis

1. INTRODUCTION

WU Ying, YAO Li, HU Kun-hong, GAO Da-ming^[1](2020) put forward the ability index points of the learning objectives of analytical chemistry course, refine the learning objectives and assessment standards, inspect the learning results of students for each ability, analyze the achievement degree of curriculum objectives, and complete the teaching quality evaluation, so as to provide guidance for continuous improvement. According to the comprehensive scoring of experts, teachers, students and teaching administrators, the influence weight of relevant indicators is determined, which ensures the objectivity and accuracy of the evaluation results. Curriculum quality evaluation is an important part of the teaching quality evaluation system, which can stimulate and guarantee the teaching quality in the whole teaching activities^[2]. JIA Wenyong, ZHANG Hongzhe, HUANG Rui, FENG Quan^[3](2020) discuss three kinds of evaluation channels of curriculum quality based on achievement orientation, and analyze the teaching supervision cases of closed-loop application of curriculum quality evaluation results, which effectively promote the connotative development of curriculum quality evaluation. Through empirical investigation and quantitative analysis, Qian Fangbin, Ding Haiyang^[4] (2020) put forward multi-dimensional and multi-stage performance evaluation indicators and influencing factors of online open courses, and attempt to construct the effectiveness evaluation system model of online open courses, so as to ensure the sustainable and healthy development of online open courses. CHEN Chun-fang^[5] studies the evaluation index from three aspects: the effect

evaluation of online course construction, the evaluation of online course application effect, and the evaluation of online course teaching effect. XU Cheng-ying, WANG Ya-ping, HUANG Li-fei^[6] analyze the basic elements of professional courses in the universities and construct a "five integrated into one" evaluation index system model including curriculum objects, curriculum framework, curriculum contents, curriculum practice and curriculum effect.

2. Research Questions

- Whether there is correlation between the evaluation indexes of curriculum quality.
- Whether there is correlation between each evaluation index of curriculum quality and curriculum satisfaction.
- Whether to establish a regression model with curriculum quality evaluation index as independent variable and curriculum satisfaction as dependent variable.

3. Research Objects

In order to further implement the concept of "student-centered, output oriented, continuous improvement", strengthen the construction of teaching quality assurance system, and improve the teaching level of the university. Taking the students of school of physics and electronic information of Nanchang Normal University as the research object, the mid-term evaluation of teaching quality was carried out in the first semester of 2020-2021 academic year. Questionnaires were sent out through Mycos platform,

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and 5443 questionnaires were recovered and 5443 were valid. The effective rate was 100%.As shown in Table 1, the respondents are college students, with 11.8% in grade 2017, 25.2% in grade 2018, 26.3% in grade 2019 and 36.7% in grade 2020.As shown in Table 2, 57.2% of the students

major in electronic information engineering, 12.6% in electronic information engineering technology and 30.2% in physics. As shown in Table 3, 30.2% of the students are normal students and 69.8% are non normal students.

Table 1 the Frequency of Grades

Grade	Frequency	Percentage (%)	Effective Percentage (%)	Cumulative Percentage (%)
2017	642	11.8	11.8	11.8
2018	1372	25.2	25.2	37.0
2019	1434	26.3	26.3	63.3
2020	1995	36.7	36.7	100.0
Total	5443	100.0	100.0	

Table 2 the Frequency of Professional

Major	Frequency	Percentage (%)	Effective Percentage (%)	Cumulative Percentage (%)
electronic information engineering	3114	57.2	57.2	57.2
electronic information engineering technology	686	12.6	12.6	69.8
physics	1643	30.2	30.2	100.0
Total	5443	100.0	100.0	

Table 3 the Frequency of Normal Students

Normal Students	Frequency	Percentage (%)	Effective Percentage (%)	Cumulative Percentage (%)
NO	3800	69.8	69.8	69.8
YES	1643	30.2	30.2	100.0
Total	5443	100.0	100.0	

4. Data Statistics and Analysis

A. Descriptive statistical analysis

It can be seen from table 4 that the average value of teaching objectives is 1.46, between 1 and 2, and the clarity of teaching objectives is between very clear and clear. The average value of discipline frontier is 1.46, between 1 and 2, and the conformity degree of discipline frontier is between very consistent and relatively consistent. The average value of case teaching is 1.46, between 1 and 2, and the help degree of case teaching is between very consistent and relatively consistent. The average value of teachers' quality such as fluent language expression and easy to understand is 1.47, between 1 and 2, between very consistent and relatively consistent. The average value of classroom discussion which meets the needs of students is 1.46, between 1 and 2, between very agree and agree. The average value of flexible teaching methods is 1.47, between 1 and 2, between very agree and agree. The average value of teaching courseware is 1.49, which is between 1 and 2, between very agree and agree. The average value of information technology is 1.48, between 1 and 2, between very consistent and consistent. The average value of teachers' Q & A is 1.48, between 1 and 2, between very consistent and relatively consistent. For the degree of help, the average value of ideological and political education is 1.5, between 1 and 2, between very large and relatively large. The average value of curriculum satisfaction is 1.47, between 1 and 2, between very satisfied and satisfied.

Table 4 Descriptive Statistics

	Teaching objectives	Subject frontier	Case teaching	Teacher literacy	Classroom discussion	Teaching method	Teaching courseware	Information technology	teachers' Q & A	Curriculum ideology and Politics	curriculum satisfaction
Mean	1.46	1.46	1.46	1.47	1.46	1.47	1.49	1.48	1.48	1.50	1.47
N	5443	5443	5443	5443	5443	5443	5443	5443	5443	5443	5443
Standard Deviation	.655	.653	.651	.653	.655	.655	.666	.660	.664	.680	.656
Minimal Value	1	1	1	1	1	1	1	1	1	1	1
Maximal Value	5	5	5	5	5	5	5	5	5	5	5

B. Reliability and validity analysis

As can be seen from table 5, the coefficient of reliability is 0.979, which is greater than 0.8, which means that the reliability is good. According to table 6, the value of KMO is 0.976, which is greater than 0.8, and which means that the validity is good.

Table 5 Reliability Statistics

Cronbach's Alpha	Item
.979	11

Table 6 KMO and Bartlett's test

Measurement of KMO(sampling adequacy)		.976
Bartlett's sphericity test	Approximate chi square	81590.854
	df	55
	Sig.	.000

C. Pearson correlation analysis

As shown in Table 7, Pearson correlation is significant at the level of 0.01, and the value of correlation coefficient is 0.770, which indicates strong positive correlation.

Table 7 Pearson correlation

	Teaching objectives	Subject frontier	Case teaching	Teacher literacy	Classroom discussion	Teaching method	Teaching courseware	Information technology	teachers' Q & A	Curriculum ideology and Politics	Curriculum satisfaction
Teaching objectives	1										
Subject frontier	.858**	1									
Case teaching	.834**	.863**	1								
Teacher literacy	.815**	.826**	.852*	1							
Classroom discussion	.794**	.812**	.828*	.840**	1						
Teaching method	.795**	.816**	.816*	.826**	.859**	1					
Teaching courseware	.786**	.811**	.801*	.813**	.823**	.855**	1				
Information technology	.783**	.802**	.788*	.807**	.812**	.831**	.843**	1			
teachers' Q & A	.796**	.815**	.806*	.817**	.813**	.816**	.830**	.849**	1		
Curriculum ideology and Politics	.770**	.793**	.784*	.783**	.796**	.794**	.799**	.815**	.825*	1	
curriculum satisfaction	.779**	.793**	.794*	.797**	.797**	.793**	.794**	.806**	.822*	.816**	1

** there is a significant correlation at the .01 level (bilateral).

5. Regression Analysis

It can be seen from table 9 that F value in ANOVA is 1865.137 and P value is 0.000, which is less than 0.05, that is, at least one of the predicted variables has an impact on the dependent variable. It can be seen from table 8 that constant, curriculum ideological and political education, teaching objectives, teaching courseware, teacher literacy, classroom discussion, information technology, case teaching, teachers' Q & A, teaching methods, subject frontiers and other predictive variables have an impact on the dependent variables of curriculum satisfaction. The prediction accuracy of the dependent variables is 77.4% by using the prediction variables.

It can be seen from table 10 that the P values of the coefficients of predictive variables are all less than 0.05, so the regression model composed of predictive variables is statistically significant. The model is shown in formula (1)

$$Y = 0.063 + X_1 * 0.068 + X_2 * 0.042 + X_3 * 0.084 + X_4 * 0.082 + X_5 * 0.081 + X_6 * 0.038 + X_7 * 0.049 + X_8 * 0.108 + X_9 * 0.181 + X_{10} * 0.220 \quad (1)$$

In the formula, X_1 is Teaching objectives, X_2 is Subject frontier, X_3 is Case teaching, X_4 is Teacher literacy, X_5 is Classroom discussion, X_6 is Teaching method, X_7 is Teaching courseware, X_8 is Information technology, X_9 is Teachers' Q & A, X_{10} is Curriculum ideology and Politics, Y is Curriculum satisfaction.

Table 8 Model summary^b

Model	R	R ²	Adjust R ²	Error of standard estimation	Durbin-Watson
1	.880 ^a	.774	.774	.312	1.831

- A. predictive variables: (constant), Curriculum ideology and Politics, Teaching objectives, Teaching courseware, Teacher literacy, Classroom discussion, Information technology, Case teaching, teachers' Q & A, Teaching method, Subject frontier.
- B. dependent variables: Curriculum satisfaction

Table 9 Anova^b

Model	Sum of squares	df	mean square	F	Sig.	
1	Regression	1814.902	10	181.490	1865.137	.000 ^a
	residual	528.570	5432	.097		
	total	2343.472	5442			

- 1. predictive variables: (constant), Curriculum ideology and Politics, Teaching objectives, Teaching courseware, Teacher literacy, Classroom discussion, Information technology, Case teaching, teachers' Q & A, Teaching method, Subject frontier.
- 2. dependent variables: Curriculum satisfaction

Table 10 Coefficients^a

Model	Coefficient of non standardization		Standardization coefficient	t	Sig.	95.0% confidence interval of B		
	B	Standard error	Beta			lower limit	upper limit	
1	(constant)	.063	.011		5.648	.000	.041	.085
	Teaching objectives	.068	.014	.068	4.804	.000	.040	.096
	Subject frontier	.042	.016	.042	2.656	.008	.011	.073
	Case teaching	.084	.016	.083	5.386	.000	.053	.114
	Teacher literacy	.082	.015	.082	5.467	.000	.053	.112
	Classroom discussion	.081	.015	.080	5.338	.000	.051	.110
	Teaching method	.038	.016	.038	2.444	.015	.008	.069
	Teaching courseware	.049	.015	.050	3.313	.001	.020	.078
	Information technology	.108	.015	.108	7.305	.000	.079	.137
	teachers' Q & A	.181	.015	.183	12.269	.000	.152	.210
	Curriculum ideology and Politics	.220	.013	.228	17.226	.000	.195	.245

- A. dependent variables: Curriculum satisfaction

6. Conclusion

The evaluation of curriculum quality is not limited to qualitative analysis. The established regression model can take corresponding measures to improve the quality of curriculum. Through intervention or improvement of a certain evaluation dimension, the quality of curriculum can be improved. Find out the key factors to improve the quality of the course. Through the improvement of ideological and political courses, teachers' Q & A and information technology, teaching department should focus on the students' needs and reverse design improvement measures to improve the quality of the curriculum.

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