An Empirical Study on the Evaluation and Analysis of Student Learning Satisfaction under the Concept of "New Three Centers"

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Abstract

Student learning satisfaction refers to the degree of satisfaction that students achieve their learning goals in school. Based on the concept of "New Three Centers", a student learning satisfaction evaluation model consisting of three dimensions of "student development, learning process, and learning effect" from the perspective of student self-evaluation is constructed in this work, which was tested and analyzed the factors differences among different dimensions of students' learning satisfaction through questionnaire survey. The evaluation results show that the reliability and validity of the sample student learning satisfaction evaluation model are all greater than 0.9, and the overall average satisfaction value is 3.85 (medium level). There are significant differences in students' learning satisfaction from different disciplines and places of origin, but there is no significant difference in students' learning satisfaction from different genders. The analysis results show that the sample schools make good use of existing school running conditions and resources, highlighting different professional characteristics, focus on students as the main body, strengthen the investigation and evaluation of students' learning needs, and pay attention to the improvement of learning satisfaction of middle and upper grade students; strive for more education resources, improve infrastructure construction and services, expand and enrich learning resources. Therefore, this method can enhance student learning satisfaction.

Keywords: *"New Three Centers" Concept, Learning Satisfaction, Evaluation Model, Satisfaction Difference*

1 INTRODUCTION

"New Three Centers" concept is a new educational thought and concept based on American psychologist Bruner's epistemology and has a history of more than 30 years in the United States. The core of "New Three Centers" concept is actually "student-centered". The connotation includes "student development, student learning, and learning effect" as the center, and requirements are given in turn from the goals, processes, and results of student learning.

In order to reflect the "New Three Centers" educational philosophy and the status of students as the mainstay of university learning, the evaluation of student learning satisfaction is an important part. It is the most intuitive representation of students' perception of the difference between university learning perception and expectation as participants and subjects of university learning. As the main body of the University, students' learning satisfaction plays an important feedback role on the quality of running a university. Ministry of education of the People's Republic of China has issued relevant announcements in September 2018, which clearly pointed out that the evaluation of College Students' learning satisfaction is an important embodiment of China's top-level development strategy of higher education. It is necessary to build a truly effective evaluation system of College Students' learning satisfaction, and reflect the teaching and quality management of colleges and universities through the evaluation of students' learning satisfaction. In the "National Medium and Long-term Education Reform and Development Plan Outline (2010-2020)", it is also pointed out that it is necessary to fully mobilize the enthusiasm, initiative and participation of students from the perspective of students at improving the teaching quality assurance system and improving the teaching evaluation [3]. Therefore, student learning satisfaction combined with

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the concept of "New Three Centers" is the focus of local universities.

Student learning satisfaction originated from foreign stakeholder and customer satisfaction theory. At present, many foreign countries regard learning satisfaction as an important criterion for measuring the quality of colleges. For example, American University Student Learning Investment Survey (NSSE) and British University Student Satisfaction Survey (NSS), Australian University Students' Curriculum Experience Survey (CEQ) all evaluate student learning satisfaction from different perspectives [5]. Foreign scholars have designed a lot of student satisfaction evaluation models. The basic conclusions of these models are that students' overall feelings and impressions of school education quality are the decisive factors affecting satisfaction [2] [4] [7]. Some studies have also been gradually introduced into China's higher education system [6] [8] [10] [11]. The domestic research on College Students' learning satisfaction is mainly theoretical discussion and empirical investigation, and many results have been achieved. However, there are few studies on the evaluation of student learning satisfaction from the perspective of students based on the educational concept of "New Three Centers". Therefore, this research aims to build a student learning satisfaction evaluation model from the three dimensions of student development, learning process, learning effect from the perspective of students, to study the learning satisfaction of local undergraduate colleges, and to analyze the influencing factors of students' learning satisfaction by using quantitative model and data regression, so as to put forward relevant strategies and suggestions to improve learning satisfaction.

2 RESEARCH DESIGN

2.1 Data and sample description

The survey data of this study comes from a university in Shaanxi Province. The university recruits undergraduates from all over the country, but the main source of enrollment is in Shaanxi Province. The survey is mainly for 527 students who have undergone evaluation and training. These students come from different disciplines such as science and engineering, humanities and social sciences, art and sports. In terms of gender distribution, there are 166 boys and 361 girls. In terms of grade distribution, there are 193 freshmen, 264 sophomores, and 50 juniors and 20 seniors. From the perspective of professional selection, a total of 85 are transferred and 442 are self-selected. From the distribution of student sources, there are 40 in provincial capitals, 59 in prefecture-level cities, 164 in county towns, and 264 in rural areas. The characteristics of the survey samples are shown in Table 1, which contained and reflected some information with a certain degree of representatives and influence.

Table 1: Sample feature statistics

Variable	Option	Quantity	Proportion
Grade	Freshman	193	36.62%
	Sophomore	264	50.09%
	Junior	50	9.49%
	Senior	20	3.80%
Gender	Male	166	31.50%
	Female	361	68.50%
Subject category	Science and engineering	275	52.18%
	Agricultural medicine	0	0%
	Social Sciences	196	37.19%
	Sports Art	56	10.63%
Professional selection method	Optional	442	83.87%
	Adjustment	85	16.13%
Place of birth Capital	City	40	7.59%
	Prefecture-level cities	59	11.2%
	County town	164	31.12%
	Rural	264	50.09%

2.2 Design of evaluation questionnaire

Based on the comprehensive reference to the Customer Satisfaction Index (ASCI) and College Student Learning Satisfaction Index (CCSS) and other models, an evaluation system of local college students' learning satisfaction is designed based on the concept of "New Three Centers". According to the characteristics of student learning activities and university teaching, domestic and foreign research documents and existing satisfaction questionnaire are used for reference. The opinions of teaching management personnel, experts, teachers and students have been collected to form the index system and questionnaire for the evaluation of influencing factors. The test score includes three dimensions of student development, learning process, and learning effect, involving 23 test items. After repeated trials and revisions, it can accurately reflect the evaluation requirements of student learning satisfaction.

The specific influencing factors structure variable composition and scores are shown in Table 2. Among them, the evaluation items use the Likert five-level scoring method, 1 represents very dissatisfied, 2 represents dissatisfied, 3 represents generally satisfied, 4 represents relatively satisfied, and 5 represents very satisfied. The scores of different dimensions can indicate the degree of satisfaction of the target students in this aspect. The higher the score, the higher the satisfaction of the evaluation object.

Table 2: Evaluation data results and reliability statistics

Dimension	Influence factor	number	Mean	standard	Score	α
Student development	Humanistic	A1	3.48	0.74	0.26	0.86
	Scientific	B2	3.57	0.72	0.28	
	learning	C3	3.52	0.72	0.24	
	life	D4	3.75	0.72	0.23	
	Responsibility	E5	4.13	0.77	0.22	
	Innovation	F6	3.52	0.72	0.22	
Student learning	Theoretical learning	G8	4.15	0.68	0.24	0.92
		G9	4.16	0.68	0.22	
		G10	4.03	0.70	0.18	
	Practice learning	H11	4.15	0.66	0.19	
		H12	3.66	0.84	0.068	
		H14	4.02	0.66	0.15	
		H15	4.13	0.67	0.17	
	Expansion	I16	3.84	0.72	0.054	
	Service	J18	3.9	0.71	0.065	
		J19	4.18	0.76	0.12	
		J20	3.96	0.74	0.091	
Learning effect	Theory knowledge	J22	3.41	0.95	0.27	0.84
		K24	3.78	0.76	0.24	
		L25	3.74	0.66	0.33	
	Skill	M26	3.68	0.71	0.31	
	Professionalism	N27	3.86	0.79	0.25	
	Quality	O28	3.95	0.73	0.17	

3 EMPIRICAL ANALYSIS

3.1 Reliability and validity

The data in this study uses SPSS22.0 for statistical analysis. First, the reliability and validity of the learning satisfaction evaluation must be tested and analyzed. Reliability refers to the consistency and reliability of test data results. The higher the reliability of the Cronbach coefficient α, the better the stability of the evaluation, and the general condition coefficient above 0.7 indicates that the evaluation questionnaire has good reliability. After testing, Cronbach coefficient value of the overall evaluation of student learning satisfaction is α=0.937, indicating that the overall reliability of the sample has passed the test. This shows that the satisfaction evaluation has high reliability and stability. Validity can accurately reflect the correctness of measuring students' learning satisfaction. Here, through sampling appropriateness measure KMO and Bartlett's sphericity test, Bartlett to obtain KMO=0.950, and Bartlett sphericity test significance Sig value = 0.000. The significance is far less than 0.05, which shows that the test results are ideal and the evaluation validity is good.

3.2 Overall analysis of satisfaction

Figure 1 presents the scores of various dimensions of school students' learning satisfaction. It can be seen that the average student satisfaction score is 3.851, and the

standard deviation is 0.471. On the whole, student learning satisfaction is between general satisfaction and relatively satisfactory. Separately, the average score of the learning process in each dimension of satisfaction is the highest. The school has been paying close attention to teaching reform and teaching quality and constantly enriching the teaching of extracurricular second classrooms.

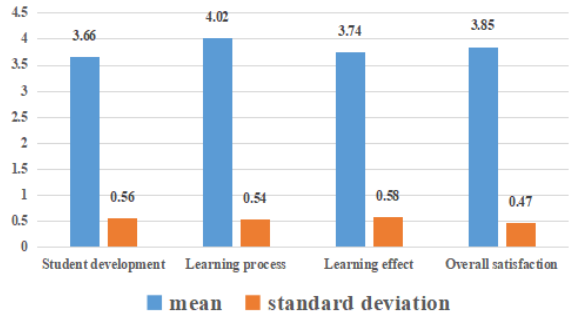

Figure 1: Score statistics of various dimensions of student learning satisfaction.

To promote teaching reform, we should recommend curriculum construction, first-class specialty construction and evaluation method reform to strengthen the central position of talent training. The average student development satisfaction score is the lowest. The main reasons are controllable reasons within the school, such as insufficient education guidance for students' career planning and autonomous learning, insufficient analysis of learning goals and development goals in the teaching process, etc. The students themselves' lack of planning and understanding of professional learning development, lack of understanding of the training goals set by the school, etc. There are also uncontrollable objective reasons from outside the school, such as the configuration of teaching equipment. These must be solved with the help of external cooperation resources.

3.3 Differences in learning satisfaction among different genders

Gender will have varying degrees of influence on students' learning activities during school. Gender differences have been closely watched by researchers in student learning and psychological education research. The differences in learning satisfaction among different background groups have also become one of the focuses of research. Table 3 shows the differences of gender satisfaction in different dimensions.

Table 3: Gender differences in different dimensions

Satisfaction	Gender	Mean	Standard	T	P
Development	Male	3.65	0.51	-0.50	0.62
	Female	3.68	0.66		
Learning process	Male	3.99	0.49	-1.39	0.17
	Female	4.07	0.62		
Learning effect	Male	3.76	0.51	1.30	0.19
	Female	3.68	0.69		
learning satisfaction	Male	3.84	0.42	-0.48	0.63
	Female	3.87	0.57		

It can be seen from Table 3 that the significance P among different gender student groups are all greater than 0.05. In general, a significant $P<0.05$ represents a significant difference. $P<0.01$ represents a very significant difference. The result of significant P here shows that satisfaction and gender are not intrinsically related. Therefore, this also shows that gender does not play a substantial role in the evaluation of student learning satisfaction.

3.4 Differences in learning satisfaction among different subjects

Discipline is of great significance in the cultivation of talents in colleges and universities. To a certain extent, the subject also determines the future work and study field of the student, and shapes the student's attitudes, emotions and values. The analysis and statistics of related data from the perspective of disciplines have also become the focus of increasing attention of researchers. Table 4 shows the differences in satisfaction of disciplines in different dimensions.

Table 4: Differences of disciplines in different dimensions

Satisfaction	Science and Engineering (N=275)		Social Sciences(N=196)		Sports and Art(N=56)	
	Mean	Standard	Mean	Standard	Mean	Standard
Development	3.64	0.61	3.69	0.50	3.70	0.52
Learning process	3.99	0.57	4.07	0.47	4.00	0.56
Learning effect	3.65	0.62	3.80	0.51	3.91	0.52
Overall	3.81	0.51	3.90	0.41	3.90	0.47

It can be seen from Table 4 that the significance P among different subject student groups is quite different. The result of significance P shows that there is no significant difference in student development, learning process, and overall satisfaction among students of different disciplines. the significance P=0.01 in the learning effect, which means that there are significant differences in students' satisfaction with learning effect among students of different disciplines. Through the calculation of the average value of LSD post-test and the average value of different dimensions, it is found that sports category> humanities and social sciences category> science and engineering category. Among them, in the significance of the specific items of satisfaction with the learning effect, it is found that students' off-campus training and internship conditions, the degree of participation in practical teaching, professional clubs, large-scale projects, science and technology competitions, voluntary services, vocational skills training, summer practice, etc. In the second classroom activities, there is a significant difference in the degree of satisfaction between teachers' tutoring and helping students. Science and engineering students have the lowest satisfaction with the above, indicating that there is a certain gap between the above-mentioned needs of students and the resources provided by the school.

3.5 Differences in learning satisfaction among different subjects

To some extent, the student's place of origin affects the learning motivation, learning foundation and learning consciousness of students entering the university. Therefore, it is of great significance to analyze the satisfaction of students from different places of origin. Table 5 presents the differences in the different dimensions of the student source.

Table 5: Differences in different source areas

Satisfaction	Provincial capital (N=40)		Prefecture-level (N=59)		County town(N=164)		Country town (N=264)	
	Mean	Standard	Mean	Standard	Mean	Standard	Mean	Standard
Development	3.86	0.64	3.79	0.65	3.60	0.51	3.64	0.55
Process	3.86	0.52	3.90	0.66	4.11	0.53	4.01	0.50
Effect	3.77	0.62	3.73	0.75	3.74	0.53	3.73	0.55
Overall	3.84	0.48	3.83	0.62	3.88	0.45	3.84	0.44

It can be seen from Table 5 that the significant P differences of student learning satisfaction in different student origins are large. The results of the significance P show that there is no significant difference in the

learning effect and overall satisfaction of students from different places of origin, but the significance is P=0.016 in the development of the students, and the significance is P=0.009 in the learning process, which is different from the origin. Through the calculation of the average value of student development and different dimensions of LSD posttest, it is found that provincial capital > prefecture level > countryside > County. Among them, in the salience of the specific items in student development, it is found that there are obvious differences with humanistic accumulation, humanistic feelings and aesthetic appeal, rational thinking, critical questioning, and the spirit of exploration. The students from rural towns are the least satisfied with the above, which shows that the students are obviously affected by the region. Through the calculation of the average value of the learning process and the average value of different dimensions through the LSD post-test, it is found that the provincial capital <prefecture level <country <county town. In the specific items of satisfaction in the learning process, it is found that teachers' moral cultivation, teachers adopt diversified teaching methods such as inspiration, cases and discussion, and there are obvious differences in the satisfaction of information teaching, school experiment and training conditions. Students from cities are the least satisfied with the above, which shows that urban students have higher requirements for the teaching quality.

4 CONCLUSIONS

Students are the builders of the quality of school education. They can also clarify the education information provided by the objects they train [1] [9] [12] [13] [14] [15]. The survey results of this study show that the learning satisfaction of the sample students is at a medium level, and there is still much room for improvement.

The evaluation and analysis of student learning satisfaction show that teachers' enthusiasm for work will directly affect the quality of teaching and students' enthusiasm for learning. Schools should increase investment and introduce encouraging policies and systems to guide teachers to concentrate on teaching. First of all, teachers should understand and accept the new ideas of education, and then integrate the new ideas into the classroom, give full play to the initiative of the student group, stimulate students' enthusiasm for learning. Secondly, students must have a certain degree of gradual learning. Students of different grades have different learning needs. Teachers must carefully study the differences between students and give targeted guidance and assistance.

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