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A quantitative analysis of the influence of ideological and political education on students' learning satisfaction

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Abstract: In China, ideological and political education is currently the hot direction of teaching reform in various colleges and universities, yet the development of appropriate teaching evaluation methods needs to catch up. This study addresses the pressing need for a preliminary investigation into the complex relationships among ideological and political education, the students' learning satisfaction and teaching quality. This research examines the influence of teaching and ideological and political education quality on students' satisfactions by designing a set of scales, collecting about 3800 questionnaires. Utilizing Structural Equation Modeling (SEM) and qualitative interviews, this study reveals that the teaching quality directly affects students' learning satisfaction and ideological and political education. Notably, ideological and political education can also affect students' learning satisfaction. The findings underscore the importance of including ideological and political education assessments in evaluating courses. This research contributes to the ongoing dialogue on effective teaching evaluation methods in the context of evolving educational practices.

Keywords: teaching evaluation scale; ideological and political education; structural equation model; students' learning satisfaction; teaching quality

1. Preface

A fact is a problem only when it is regarded as a problem. Otherwise, it is not a problem (Huang, 2006; Laudan, 1977, 1981). For a long time, the ideological and political education of universities and the teaching of professional courses have been disconnected. The fundamental reason is that the school should have paid more attention to the curriculum's ideological and political education in teaching management. The curriculum's ideological and political education were not separately listed as a factor in the teaching evaluation (Gao and Zong, 2017b).

At the National Conference on Ideological and Political Work in Colleges and Universities, Jinping Xi stressed that China should take moral education as the central link, run ideological and political work throughout the whole process of education and teaching, and realize whole-process and comprehensive education (Gao and Zong, 2017a). The statement puts forward new requirements and goals for modern university teaching management. The universities must pay attention to Ideological and Political Education (IPE) Work in teaching evaluation and supervision. In June 2020, the Ministry of Education specially issued the guiding outline for the construction of IPE in around 2700 colleges and universities in China, which carried out a top-level macro design for the implementation of IPE in the curriculum.

Curriculum IPE is now the key topic of teaching reform in every university under the guidance of the policies of the Chinese government. However, there is a shortage of research on the impact of curriculum IPE on teaching results (Meng, 2022). How to evaluate this new education reform is still a problem. In order to realize the scientific construction of the quality of curriculum IPE, it should be based on the subject, object, content, and procedure of the curriculum. This situation needs some research to examine IPE as a separate factor rather than mixing it into the teaching quality as before and analyzing the relationship between IPE and other elements. There is necessary to have some exploratory research on the IPE administration of courses, to solve how to properly manage and evaluate the effect IPE play in a system. Therefore, some researches to test their correctness and rationality are needed by the new standards.

2. Literature review

Curriculum IPE has become a hot direction of educational reform in colleges and universities. In November 2022, about 31,900 papers can be directly searched, among which about 2500 are from core journals. The current research for ideological research is mainly in two directions. One is the macro ideological construction as a whole. The second is to implement the specific teaching curriculum ideological reform.

2.1. Research on the macro direction

Qiu (2017) elaborates on the importance of "IPE" and the valuable source of "IPE" and gives the generation path, which is representative of macro research. Wang and Shi (2020) very clearly define IPE is to cultivate people by virtue and gave macro countermeasures to the difficulties in the implementation of "IPE," such as improving the IPE system of the school, and gradually carrying out characteristic ideological and political courses. Lu (2018) finds that the most severe difficulty and core problem in "curriculum IPE reform" lie in evaluating the effect of IPE. He points out that although curriculum IPE reform pays more attention to the invisible, it does not mean there is no need to evaluate "curriculum IPE reform." The evaluation plays a significant role in discovering the implementation effect of "curriculum IPE affairs" and its influence on students. Zhang (2021) further points out that the "curriculum IPE affairs" emphasizes the value and orientation of education, which is the concentrated embodiment of the orientation attribute of socialist education with Chinese characteristics, and it is the essential task of institutions of higher education. At the same time, establishing and improving the course's IPE quality evaluation system and incentive mechanism is a solid guarantee for the course's IPE quality (Zhang, 2021).

2.2. Research on micro-specific curriculum reform direction

Wen (2021) specifically studied the implementation framework of IPE affairs of foreign language for college students' courses. She divided the IPE courses into four chains: content chain, management chain, evaluation chain, and teachers' activities chain, and gave a specific framework and the steps of teaching scheme design. Based on the "curriculum IPE evaluation" of physical education, Wang (2019) put forward that universities' existing classroom teaching evaluation standards are not accurate

enough in physical education. Hence, it is necessary to improve the teaching evaluation system for physical education classrooms to play the role of evaluation baton. In a specific course, "Fine Organic Synthetic Chemistry and Technology". Feng et al. (2018) explore the course's IPE reform and teaching reform, mainly in the teaching concept, teaching content, and teaching methods; these three aspects of the IPE gave specific cases.

Most scholars emphasize the importance of curriculum evaluation when conducting curriculum IPE research and point out that there needs to be more curriculum IPE evaluation in the current teaching evaluation system. Moreover, these studies have a problem: the conclusions obtained need more support for quantitative data.

This study aims to address these issues by adopting a perspective from the school's academic affairs office. It will focus on establishing a set of universal scales for evaluating teaching quality, IPE implementation, and students' learning satisfaction as three key factors. Additionally, quantitative analysis will be employed to create a foundational framework. The study intends to contribute to future research by proposing new factors to be included in the framework and deriving corresponding conclusions based on the analysis.

2.3. Theoretical model

Science is a conceptual system symbolizing a particular definition of law. The concept must be placed in a judicial system to be meaningful. Therefore, the analysis of a factor must be placed in a mature system or model to make a new judgment (Huang, 2010).

In 2001, Khan proposed a framework that analyses various factors influencing the development and implementation of the learning environment. In his teaching framework, Khan identified a variety of factors that contribute to the development of meaningful teaching systems, as illustrated in **Figure 1** below (Khan, 2001). These factors are divided into eight dimensions that help designers to identify multiple factors contributing to the success of a distributed teaching system. The Khan model is extensively recognized and applied worldwide, cited thousands of times in retrieval systems such as SCOPUS (Zolghadri and Mallahi, 2013).

Figure 1. Khan's 8-factor teaching model.

This study selected three factors in the Khan teaching model for model construction. The quality of teaching (QT) evaluation replaces Pedagogical in the model, course IPE replaces Ethical in the model, and use students' learning satisfaction evaluation to replace Evaluation in the model. Since this study is an evaluation for students in all courses in the whole school, it is only suitable to include some key factors in the academic evaluation scale. Otherwise, the number of students questionnaires will be too many, which is not conducive to the actual academic evaluation work. Thus, only three factors were selected as the building factors of the underlying model.

3. Research objectives, questions and hypothesis

3.1. Research objectives

This study evaluates teaching quality and ideological and political education's influence to students' learning satisfaction. The research goal should include three potential variables and 17 observable variables to help us evaluate potential variables. The following are the research objectives (RO):

- RO1: Examine the impact of teaching quality on IPE.
- RO2: Examine the impact of teaching quality on students' learning satisfaction.
- RO3: Examine the influence of IPE on students' satisfaction.
- RO4: Examine the impact of regulatory variables (gender, grade, learning expectations) to the results.

3.2. Research questions

The research questions posed are to meet the study's objectives and reflect the conceptual framework guiding the study. Those research questions (RQ) were tested in the research:

- RQ1: Will the teaching quality have any impact on IPE?
- RQ2: Will the teaching quality have any impact on students' learning satisfaction?
- RQ3: Will the IPE have any impact on students' learning satisfaction?
- RQ4: Will the regulatory variables have any impact to the results?

3.3. Research hypothesis

From the research questions, RQ1, RQ2, RQ3, and RQ4 consist of several hypotheses to be tested; they are listed below:

- Research hypothesis 1: The teaching quality can affect the course's IPE.
- Research hypothesis 2: Teaching quality can affect students' learning satisfaction.
- Research hypothesis 3: The quality of IPE courses can affect students' learning satisfaction.
- Research hypothesis 4: Regulatory variables (gender, grade, learning expectations) will affect the results of these assumptions.

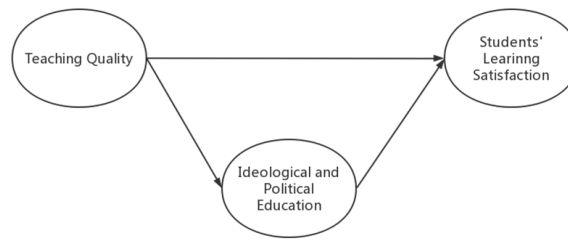The conceptual model of this study is shown in **Figure 2** below:

Figure 2. Conceptual model.

4. Data and methodology

4.1. Applied instruments

This study mainly combined three scales into a whole academic evaluation volume. The teaching quality evaluation scale is the most commonly used in domestic universities summarized in Yu's (2015) doctoral thesis. This scale yielded very high-reliability validity and was partially screened after the anterior study.

The student satisfaction evaluation adopts the student satisfaction scale in Wang Gaihua's doctoral thesis, which is widely used in various doctoral papers of Shaanxi Normal University. This scale yielded very high-reliability validity and was partially screened after the anterior study (Wang, 2020). Although there are many research papers on IPE, few give the course's IPE measurement scale. Finally, the curriculum IPE evaluation scale of Wu and Huang (2022) is selected in this research. Three indicators of student gender, grade, and expectation of the course were selected as the adjustment variables of the study. The overall scale was collected and analyzed using the Likert Five-dimensional scale, as follows **Table 1**:

Table 1. Student course evaluation scale after integrating into the course IPE factors.

Evaluative dimension	Questionnaire content
Quality of teaching (QT)	QT1: The lecturer shall master the necessary professional and teaching knowledge of the subject. Have the ability to teach design, implementation, evaluation, reflection, and research of the subject taught.
	QT2: The keynote teachers respect students' rights, status, and personality, care about students' physical and mental health, and promote their all-round development.
	QT3: The lecturers should grasp the laws and learning characteristics of students' physical and mental development, understand the basis of students' learning, stimulate students' learning motivation, cultivate students' learning ability, and guide students' independent development.
	QT4: Teachers should reasonably plan the teaching steps and appropriately choose and use the teaching methods, media, and forms.
	QT5: The lecturers are familiar with the nature, knowledge system, and development frontier and understand the subject's status in the curriculum system and its relationship with the training objectives.
	QT6: The lecturers consciously abide by the teaching discipline, conscientiously perform the teaching norms, and ensure a good teaching order.
Students' learning satisfaction (SLS)	SLS1: Satisfaction with the teaching form.
	SLS2: Satisfaction with the class arrangement.
	SLS3: Satisfaction with teaching activities design.
	SLS4: Satisfaction with practice and test difficulty.
	SLS5: Satisfaction with learning score evaluation criteria.
	SLS6: The ability to analyze and solve problems has improved through this course.

Table 1. (*Continued*).

Evaluative dimension	Questionnaire content
Ideological and political education (IPE)	IPE1: Teachers pay attention to the guidance of students' correct world outlook, outlook on life and values, and the integration of professional content and IPE elements.
	IPE2: The course integrates the development trend of the world and China, professional development and career ideals, and personal moral cultivation.
	IPE3: The course integrates historical resources, school history resources, cultural resources, and other educational content.
	IPE4: I can be educated and inspired in the course teaching, which is conducive to developing my IPE accomplishments.
	IPE5: I give this course's overall IPE evaluation.

4.2. Descriptive statistics of samples

Given this scale, Zhejiang Ocean University conducted the reliability and validity test through the "questionnaire star", and 3857 questionnaires were collected from about 13,000 undergraduates in various majors with unlimited evaluation objectives. After recovering the questionnaire, the preliminary data screening was conducted in which the answer time was no less than 90 s, and no more than 140 s, and delete all the dates which are given the same score to multiple consecutive options. Only 433 dates are left for this research, the descriptive statistics of this research is in the following **Table 2**.

Table 2. Frequency analysis results of this research.

Item	Option	No	%
Grade	1.0	147	33.95
	2.0	134	30.95
	3.0	100	23.09
	4.0	52	12.01
Gender	1.0	184	42.49
	2.0	249	57.51
Expectations for the course before learning	1.0	65	15.01
	2.0	224	51.73
	3.0	108	24.94
	4.0	28	6.47
	5.0	8	1.85
Total		433	100.0

Among these 433 questionnaires, there were 184 boys and 249 girls enrolled. The number of students from freshman to senior year is 147, 134, 100 and 52. Students' expectations for the course are divided into five dimensions the number from very high to not looking forward to this course at all are: 65, 224, 108, 28 and 8 most students have relatively high expectations for the course.

4.3. Reliability and validity analysis

The standardized load values corresponding to each latent variable range from 0.684 to 0.908, and the corresponding Z values range from 17.178 to 29.466, as shown

in the factor load coefficient table of **Table 3**. Cronbach's corresponding to each latent variable α the coefficients between 0.920 and 0.944 are all greater than 0.9, indicating that the sample data has good reliability. The combined reliability coefficient (CR) values for each dimension are more significant than 0.8 between 0.919 and 0.944, indicating that the measurement questions for each potential variable have internal consistency. The average variance extracted (AVE) values of each dimension are more significant than 0.65 between 0.657 and 0.770, indicating that each size of the measurement model has good convergence validity. The specific data is shown in **Table 3**.

Table 3. Table of factor load factors for the scale.

Latent variables	Measurement index	Non-standard load factor (Coef.)	Std. error	Z	p	Standard load factor	Cronbach's α	CR	AVE
Quality of teaching (QT)	QT1	1.000	-	-	-	0.888	0.943	0.944	0.737
	QT2	0.705	0.034	20.545	0.000	0.767			
	QT3	0.919	0.035	26.446	0.000	0.873			
	QT4	0.977	0.035	27.933	0.000	0.895			
	QT5	0.915	0.033	27.638	0.000	0.890			
	QT6	0.708	0.030	23.952	0.000	0.833			
Students' learning satisfaction (SLS)	SLS1	1.000	-	-	-	0.898	0.920	0.919	0.657
	SLS2	0.750	0.038	19.551	0.000	0.741			
	SLS3	0.943	0.032	29.466	0.000	0.908			
	SLS4	0.706	0.041	17.178	0.000	0.684			
	SLS5	0.779	0.034	22.730	0.000	0.806			
	SLS6	0.820	0.036	22.504	0.000	0.802			
Ideological and political education (IPE)	IPE1	1.000	-	-	-	0.884	0.944	0.944	0.770
	IPE2	0.989	0.038	25.906	0.000	0.871			
	IPE3	1.002	0.042	23.950	0.000	0.839			
	IPE4	1.098	0.039	28.156	0.000	0.905			
	IPE5	1.084	0.040	26.973	0.000	0.888			

4.4. Scale discrimination test

For QT, students' learning satisfaction (SLS) and IPE, their AVE square root values are 0.859, 0.810, 0.878 respectively, which are greater than the maximum absolute values of the inter factor correlation coefficients indicating good discriminant validity. The details are shown in **Table 4**.

Table 4. Differentiation validity of latent variables: Pearson correlation and AVE square root value.

-	Quality of teaching (QT)	Students' learning satisfaction (SLS)	Ideological and political education (IPE)
Quality of teaching (QT)	0.859	-	-
Students' learning satisfaction (SLS)	0.823	0.810	-
Ideological and political education (IPE)	0.704	0.714	0.878

4.5. Model fit of the scale

After delete QT2, SLS2, SLS4 which standard load factor are all below 0.8, this research run the SEM in Amos 24. The model fit of the scale are just as the following **Table 5**.

The chi square degree of freedom ratio of the scale $\chi 2/df$ is 4.956 more than 3 but less than 5, GFI is 0.901>0.9, RMSEA is 0.096<0.10, RMR is 0.032<0.05, and CFI, NFI, and NNFI also meet the model fitting indicators. The details are shown in **Table 5**:

Table 5. Model fitting index.

$\chi 2$	df	$\chi 2/df$	GFI	RMSEA	RMR	CFI	NFI	NNFI
-	-	<5	>0.9	<0.10	<0.05	>0.9	>0.9	>0.9
361.763	73	4.956	0.901	0.096	0.032	0.954	0.943	0.943

4.6. Structural equation model analysis

The final test results of the structural equation model and the parameter test values before and after the revision of the hypothesis model are shown in **Table 6**. After correction, the CR values of the influence relationship between each factor are greater than 2, and the P values are all significant at the 0.01 level. Specifically, quality of teaching will have a positive impact on IPE, the standardized regression coefficient is 0.738 so research hypothesis 1 is confirmed by the research result.

Quality of teaching will have a positive impact on students' learning satisfaction (SLS), the standardized regression coefficient is 0.789 so research hypothesis 2 is confirmed by the research result.

The quality of IPE courses can affect students' learning satisfaction, the standardized regression coefficient is 0.179, so research hypothesis 3 is confirmed by the research result.

Table 6. Summary table of model regression coefficient.

X→Y	Non standardized regression coefficient	SE	z (CR)	p	Standardized regression coefficient
QT→SLS	0.815	0.047	17.363	0.000	0.789
IPE→SLS	0.230	0.051	4.499	0.000	0.179
QT↔IPE	0.433	0.019	22.241	0.000	0.738

4.7. Analysis of overall SEM model effects

Based on the previous model revision and verification, the final structural equation model for the impact analysis of the IPE is shown in **Figure 3**.
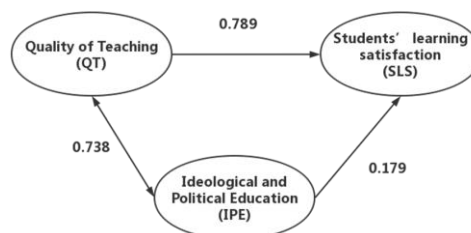

Figure 3. The final structural equation model.

The effect size of the structural equation model for the impact analysis of the IPE is shown in **Table 7** below. The direct effect has been identified in the figure above. The effect between the QT and IPE is 0.738. The QT has both direct and the indirect impact on students' learning satisfaction (SLS) the overall effect size value is 0.9211. The IPE also has both direct and the indirect impact on students' learning satisfaction (SLS) the overall effect size value is 0.7613.

Table 7. Effect size of structural equation model for IPE impact.

-		Independent variables	
	Dependent variables	Quality of teaching (QT)	Ideological and political education (IPE)
Standard direct effect	Ideological and political education (IPE)	0.738	-
	Quality of teaching (QT)	-	0.738
	Students' learning satisfaction (SLS)	0.789	0.179
Standard indirect effect	Students' learning satisfaction (SLS)	0.1321	0.5823
Standard total effect	Ideological and political education (IPE)	0.738	-
	Quality of teaching (QT)	-	0.738
	Students' learning satisfaction (SLS)	0.9211	0.7613

4.8. Analysis of regulatory variables

After test the regulatory variables in the model, this research find that gender and grade does not play a regulatory role in the model. When QT affects SLS, the influence amplitude of learning expectation at different levels has significant differences, which can be seen through the following simple slope plot. That is, learning expectation has a moderating role in this relationship.
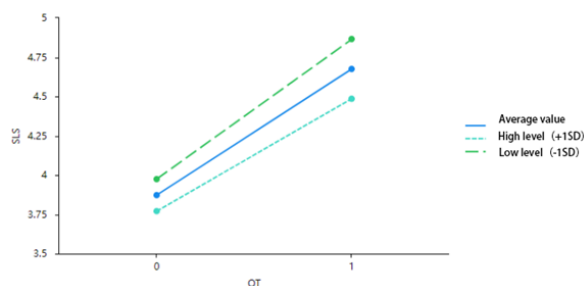

Figure 4. Simple slope plot.

This **Figure 4** shows that students who have high expectations of the course are more sensitive to the QT, and the QT has a greater impact on the SLS. Research hypothesis 4 is confirmed by the research result.

5. Qualitative analysis and classification

According to the conclusions of the quantitative study, this research conducted qualitative interviews with approximately 200 students who participated in the questionnaire survey. The findings are as follows:

5.1. Qualitative analysis and classification of the relationship between quality teaching (QT) and IPE

The majority of respondents expressed their support for the Ministry of Education's ongoing curriculum IPE reform in China, believing that there is a correlation between the QT and IPE. Only six respondents held differing opinions, primarily due to concerns about teachers' inadequate preparedness in terms of teaching abilities. Importantly, none of the respondents believed that the curriculum IPE reform itself would negatively impact the quality of teaching. Furthermore, a large majority of respondents demonstrated a positive attitude towards IPE, indicating that the reform direction and promotional efforts implemented by the Ministry of Education have been successful.

5.2. Qualitative analysis and classification of the relationship between IPE and students' learning satisfaction (SLS)

By organizing and analyzing the answers provided by the surveyed students and teachers to this question, the responses can be roughly divided into two categories. The first category is those who recognize that Ideological and Political Education (IPE) has a positive impact on both Students' Learning Satisfaction (SLS) and Students' Learning Outcomes (SLO). The second category is those who recognize that IPE has an impact on Students' Learning Satisfaction (SLS), but not on Students' Learning Outcomes (SLO). Among the respondents in the first category who acknowledge the positive impact of IPE on Students' Learning Satisfaction (SLS), there are four subcategories of relevant opinions:

1) High-quality IPE: Some respondents believe that high-quality IPE can have a positive impact on students, leading to increased satisfaction with their learning experience.
2) Low-quality IPE: Conversely, there are opinions suggesting that low-quality IPE can have a negative impact on students, potentially leading to decreased satisfaction with their learning experience.
3) Increased teaching requirements: Some respondents highlight that IPE increases the teaching requirements for teachers, implying that the implementation and delivery of IPE necessitate additional effort and preparation from educators.
4) Importance of IPE: Another perspective expressed by the respondents is that IPE plays an important role in teaching and education as a whole, contributing to students' overall learning experience and satisfaction.

In the second category, 9 respondents recognized the impact of IPE on Students' Learning Satisfaction (SLS), but did not recognize its impact on Students' Learning Outcomes (SLO).

5.3. Qualitative analysis and classification of the relationship between QT and students' learning satisfaction (SLS)

All interviewees supported the positive effect of Quality Teaching (QT) on Students' Learning Satisfaction (SLS). However, a few respondents believe that Students' Learning Satisfaction (SLS) will also have a feedback effect on Quality of Teaching (QT).

6. Conclusion and outlook

6.1. Conclusion

We can get the following conclusions from the quantitative analysis of the 3,617 questionnaires from Zhejiang Ocean University.

A. The relationship between teaching quality and ideological and political education (IPE) has been verified through quantitative data analysis and qualitative research. Meng (2023) discovered that IPE for college students, particularly when based on new media in the context of the Internet, contributes to the integration of students' independent learning ability and practical skills. Additionally, the experimental results of Zhang and Guo (2023) demonstrate that the establishment of ideological and political culture in colleges and universities effectively enhances students' positive psychology. This indicates that the cultivation of ideological and political culture in higher education institutions positively influences the development of students' psychological well-being and fosters their healthy mindset (Hammill et al., 2022; He et al., 2020; Zhou et al., 2021). These research findings provide an explanation for the interrelationship between IPE and teaching quality.

B. IPE can influence students' learning satisfaction positively. The interaction between teachers and students in universities plays a crucial role in not only conveying knowledge and skills but also integrating emotional attitudes and values (Jun and Guorui, 2019). Students' self-awareness and satisfaction with the "ideological and political curriculum" are closely intertwined with the frequency and quality of teacher-student interaction. Essentially, "curriculum IPE" refers to a form of teacher-student interaction that involves dialogues and practices related to learning. Numerous scholars argue that within the curriculum's IPE reform, the provision of a high-level learning and support environment by universities, the interaction between esteemed professors, students, and tutors, as well as teacher-led and student-led educational and teaching activities, can positively influence students' satisfaction with their education (Long, 2016; Long and Wang, 2017; Sun et al., 2016).

C. The quality of teaching can affect the students' learning satisfaction like many scholars' conclusion. It is a universal finding, quality of teaching plays a very important way to make the teaching progress successfully (Admiraal et al., 2000; Al-Zu'bi, 2013; Dunn et al., 2009).

6.2. Outlook

In this study, we have developed a comprehensive academic evaluation scale based on Khan's classical and straightforward basic models, which includes three factors. This basic model can serve as a foundation for evaluating various courses. For

instance, blended learning can be assessed by incorporating an additional factor for evaluating online resources or by conducting further analysis based on the Khan model, such as exploring the influence of teaching management factors on other teaching factors. Although students' learning satisfaction is currently considered an important indicator of teaching quality, the ultimate goal of teaching is to promote students' learning outcomes. Therefore, this scale will also examine the effects of these factors on the final learning outcomes and consider the weighting of each factor in the evaluation process.

6.3. Limitations

However, it is important to note certain limitations of this study. Firstly, due to the desire to keep the scale concise with no more than 15 options, some important factors, such as teaching equipment, were not included in the evaluation. This is because the focus of our research was on testing the scale for broader university implementation. Secondly, this study primarily considered traditional teaching forms and did not encompass blended learning or other alternative teaching methods. As a result, the applicability of the scale may be limited in these contexts.

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