

Article

Critical Thinking Conceptions, Attitudes and Practices Among Ideological and Political Theory Course Lecturers in Chinese Higher Education

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Abstract

Critical thinking is a stated priority of higher education reform in China, yet its enactment in everyday teaching remains uneven. This study investigated how lecturers of ideological and political theory courses (IPTCs) understand and value critical thinking, and how they report teaching it. To our knowledge, few studies have modelled lecturers' conceptions, attitudes, reported practices and contextual constraints jointly within these courses. An explanatory sequential mixed-methods design was employed. A validated questionnaire was completed by 362 IPTC lecturers across 20 universities in Anhui Province, and semi-structured interviews were subsequently conducted with 34 lecturers. The survey data were analysed using descriptive and inferential statistics, including multiple and moderated regression, whereas the interview data were examined thematically. Although lecturers endorsed critical thinking strongly as a general educational aim, they rated its place within IPTCs considerably lower, and they conceptualised it predominantly in terms of logic and reasoning. Reported classroom enactment fell below the scale midpoint. Conceptions did not predict practice; attitudes predicted it only weakly (standardised $\beta = 0.13$), and contextual constraints did not moderate the attitude–practice relationship. The regression models accounted for almost none of the variance in reported practice. These findings indicate a broad belief–practice gap that is shaped by structural conditions rather than by individual beliefs. The single-province, self-report design constrains wider generalisation. The findings direct reform attention towards assessment design and sustained, practice-based professional learning, since belief change alone appears unlikely to alter classroom practice.



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Keywords: critical thinking; ideological and political theory courses; teacher beliefs; teaching practices; belief–practice gap; Chinese higher education

1. Introduction

Critical thinking occupies a central position in contemporary higher education, where graduates are increasingly expected to evaluate evidence and to reason through unfamiliar, non-routine problems [1]. Across many higher education systems it has consequently been regarded as a core graduate attribute [2]. In China, this aspiration has been reinforced through successive waves of higher education reform. The priority itself is therefore not

in dispute. What remains contested is whether critical thinking is reliably enacted in the routines of everyday teaching.

Critical thinking is commonly defined as purposeful, self-regulatory judgement that issues in interpretation, analysis, evaluation and inference [3], and researchers extend this cognitive core to dispositions such as open-mindedness and a commitment to truth seeking [4]. Skills and dispositions are not readily separable in practice, since the disposition to inquire governs whether analytic skills are mobilised in authentic situations [5]. Teaching critical thinking is similarly demanding. Explicit instruction and structured dialogue can improve reasoning [1], and gains tend to be larger when thinking is made visible and rehearsed repeatedly [6]. Instructors nevertheless frequently endorse critical thinking in principle while teaching it only implicitly or incidentally [7], and reviews describe the movement from stated principle to durable classroom routine as persistently difficult [8].

The relationship between teachers' beliefs and their classroom practice is, in any case, far from straightforward. Reviews of teacher cognition document recurrent divergence between stated beliefs and observed teaching [9]. Heavy content demands and assessment pressures condition this divergence, and limited preparation time compounds it, so the belief–practice gap is best read as a structural phenomenon to be explained. A two-part logic accordingly informs the present study. Lecturers' conceptions and attitudes may establish a direction for teaching, while the surrounding conditions and the available pedagogical skills determine whether that direction is realised, and beliefs and constraints are therefore modelled jointly.

Studies situated in China report a comparable pattern. University teachers widely value critical thinking but describe limited and inconsistent enactment [10]. Their conceptions are often broad or slogan-like, which complicates the translation of principle into teachable moves [11]. Confucian-influenced classrooms, moreover, frame critique and authority in culturally specific ways [12], and although dialogue-based pedagogy can develop reasoning, it depends on deliberate instructional design [13]. Evidence on Chinese learners abroad further cautions against deficit readings, since a recent review indicates that Chinese students possess the capacity for critical thinking even where classroom conditions restrict its display [14]. Much of this evidence, however, derives from language and school settings rather than from the broader landscape of higher education disciplines.

Ideological and political theory courses (IPTCs) occupy a distinctive position within Chinese universities, being value-laden and closely aligned with national priorities [15]. Lecturers in these courses must reconcile two competing imperatives. Reform discourse encourages higher-order thinking and more student-centred engagement, whereas mandated curricular aims and assessment expectations exert pressure in the opposite direction. Questions of power and curricular control further shape what is treated as legitimate critique in such classrooms [16]. An IPTC is, for these reasons, a particularly demanding site in which to cultivate critical thinking.

Empirical evidence concerning critical thinking within IPTCs nevertheless remains scarce, as most subject-specific scholarship has addressed language, mathematics or general pedagogy. Recent work in this journal has examined project-based learning and student-centred reform in higher education [17], the use of generative artificial intelligence to support reasoning and problem-solving [18], and the disciplinary teaching of critical thinking in the biological sciences [19]. To our knowledge, however, few studies have examined IPTC lecturers' conceptions and attitudes alongside their reported classroom practices.

The gap addressed in this study is therefore twofold. In theoretical terms, belief–practice models have rarely been examined in value-laden course settings where curricular mandates may decouple attitudes from enactment, and the moderating role of contextual constraints has yet to be tested in IPTCs. In practical terms, reform effort in China continues

to invest in awareness raising and short training, yet there is little evidence on whether belief-focused levers can shift classroom practice in these courses. Estimating the size of the belief–practice association in IPTCs therefore carries direct consequences for how professional development resources are allocated.

The present study is guided by a belief–practice perspective on teaching. Conceptions and attitudes are positioned as antecedents of practice, while contextual conditions function as enablers or constraints. The framework additionally permits constraints to moderate the relationship between beliefs and practice, such that favourable attitudes might translate into practice less readily under more constraining conditions. This reasoning is consistent with the theory of planned behaviour, in which attitudes shape behavioural intentions while perceived behavioural control conditions whether intentions become action [20]. Contextual constraints occupy an analogous position within the present framework, since they index the conditions that make enactment easier or harder. Figure 1 summarises this framework.

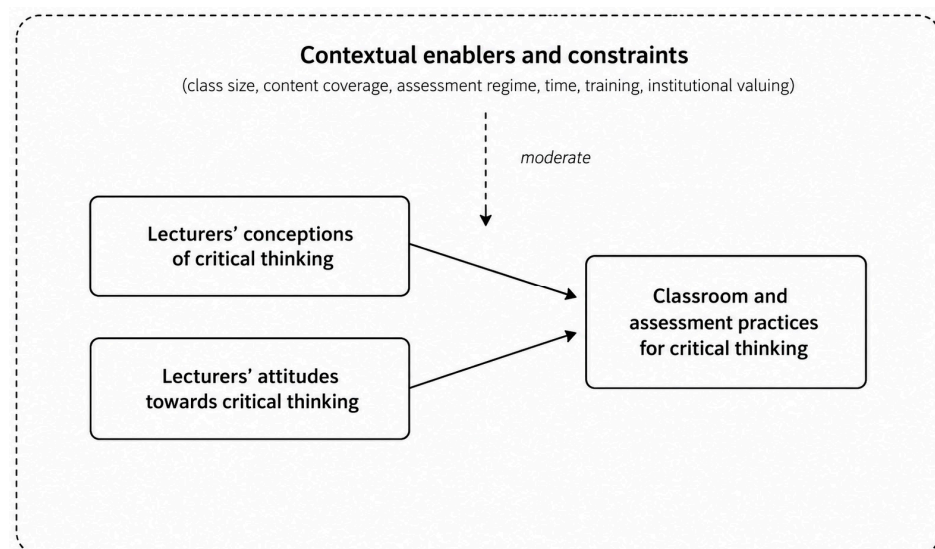


Figure 1. Conceptual framework of the study. Lecturers' conceptions and attitudes are posited to shape classroom and assessment practices for critical thinking, while contextual enablers and constraints moderate these relationships. The framework is informed by the theory of planned behaviour [20].

This study extends prior work in two respects. First, it addresses IPTC, a high-stakes yet under-researched disciplinary setting. Second, it advances beyond bivariate description, since multiple regression with demographic controls is used to estimate how far beliefs predict reported practice, and a moderated model tests whether contextual constraints condition that relationship. To our knowledge, no prior study has modelled these four constructs jointly among IPTC lecturers or tested the moderation implied by the framework in this setting. The contribution of the study lies in quantifying how far belief-focused levers can plausibly carry reform in these courses. The following research questions guided the inquiry:

1. How do IPTC lecturers conceive of critical thinking across the measured subdimensions?
2. What attitudes do IPTC lecturers hold towards critical thinking in general and within IPTCs?
3. How do IPTC lecturers report enacting classroom and assessment practices for critical thinking?
4. Which contextual enablers and constraints shape the teaching of critical thinking in IPTCs?

5. Do conceptions and attitudes predict reported practices once demographic factors are controlled?
6. Do contextual constraints moderate the relationship between attitudes and reported practices?

Three hypotheses were derived from the framework and from the theory of planned behaviour [20]:

H1. *Lecturers' conceptions of critical thinking positively predict their reported classroom and assessment practices.*

H2. *Lecturers' attitudes towards critical thinking positively predict their reported classroom and assessment practices.*

H3. *Contextual constraints moderate the attitude–practice relationship, such that the association weakens as perceived constraints increase.*

The belief–practice gap serves as the organising lens for the analysis that follows. Documenting where, and explaining why, favourable beliefs fail to translate into practice is a necessary precondition for designing reforms that are both realistic and effective.

2. Materials and Methods

2.1. Research Design

An explanatory sequential mixed-methods design was adopted [21], in which a quantitative survey phase preceded a qualitative interview phase. The survey was used to estimate the prevalence of lecturers' conceptions and attitudes alongside their reported practices, whereas the interviews served to explain how lecturers interpreted and enacted critical thinking. Triangulation across the two strands strengthened interpretation, and the qualitative phase proved particularly valuable for elucidating the weak quantitative associations reported below.

2.2. Setting and Participants

The study was conducted in Hefei, the capital of Anhui Province, which lies in central-eastern China within the Yangtze River Delta region. Hefei hosts twenty universities spanning a range of disciplines, and the sample encompassed comprehensive, science and technology, medical and liberal arts institutions. All twenty universities were included in the sampling frame, and official records indicated that approximately 1042 eligible IPTC lecturers were employed across them.

Purposive sampling was used to target lecturers with at least two years of IPTC teaching experience. The Raosoft sample-size calculator (available via <https://raosoftcalculator.net>) recommended a minimum of 281 respondents, assuming a 95% confidence level and a 5% margin of error. In total, 362 valid questionnaires were returned, a figure that improved statistical precision and provided an adequate basis for the regression analyses reported below.

A subsample subsequently participated in semi-structured interviews, with recruitment continuing until no new themes emerged, consistent with the principle of thematic saturation [22]. Thirty-four lecturers were interviewed in total, of whom twenty-three were interviewed face-to-face and eleven online. Participants varied in age, discipline and teaching experience, and this variation supported a fuller account of classroom realities.

2.3. Instruments

A closed-ended questionnaire was used to measure the four target constructs. The instrument drew on previously validated scales and was refined for the present context. The opening section collected demographic information, while the remaining sections employed five-point Likert items scored from 1 to 5, with higher scores denoting stronger agreement or more frequent practice.

Twelve items measured conceptions of critical thinking, requiring lecturers to rate attributes such as logic, reasoning and openness. Eleven items measured attitudes towards critical thinking, spanning both general value statements and IPTC-specific statements. Ten items measured classroom and assessment practices, and a further eleven items measured contextual enablers and constraints, such that each construct was represented by a dedicated subscale.

Internal consistency was acceptable to good across all four scales [23]. Cronbach's alpha was 0.83 for conceptions, 0.81 for attitudes, 0.79 for practices and 0.85 for contextual factors, with each coefficient meeting conventional thresholds. Content validity was further supported through expert review.

Subject experts reviewed the items for relevance and clarity, and the questionnaire was translated into Chinese and then independently back-translated, a procedure that reduced the risk of linguistic misinterpretation. A pilot study informed the final wording and structure of the instrument.

2.4. Data Collection

The questionnaire was administered online through the WenJuanXing platform, and the survey link was distributed via WeChat, QQ and email. Participants completed the questionnaire at a time of their choosing, and responses were screened for completeness before analysis, yielding a final dataset of 362 complete cases with no missing values.

The interviews followed a semi-structured outline supplemented by probing questions, and each lasted approximately fifteen to twenty minutes. Sessions were audio-recorded with consent and subsequently transcribed. As the interviews were conducted and analysed in Chinese, key excerpts were translated for reporting, with their meaning cross-checked by colleagues.

2.5. Data Analysis

Quantitative analyses were conducted in IBM SPSS Statistics Version 31 and independently verified in Python (Version 3.13.0). Composite scores were formed by averaging the items within each scale, such that higher composites indicated stronger endorsement or more frequent practice. Descriptive statistics summarised central tendency and dispersion, and Pearson correlations were used to examine the bivariate belief–practice relationships.

Two regression models were then estimated. Model 1 regressed reported practices on conceptions and attitudes, with five demographic variables (gender, age band, highest qualification, teaching experience and class size) entered as controls. This model tested how far beliefs predicted practice once background characteristics were held constant. It thereby provided the direct test of H1 and H2.

Model 2 tested the moderation hypothesis implied by the conceptual framework. Attitudes and contextual constraints were mean-centred prior to analysis, and their product term was entered to test the interaction, a significant value for which would indicate that constraints altered the attitude–practice relationship. The same demographic controls were retained. It provided the direct test of H3.

Statistical assumptions were examined before interpretation. Normality was assessed using the Shapiro–Wilk test, and multicollinearity was inspected and found to remain

within acceptable limits. Heteroscedasticity-consistent (HC3) standard errors were computed as a sensitivity check, and standardised coefficients were reported as effect sizes.

The interview transcripts were analysed using reflexive thematic analysis [22]. The researcher first achieved familiarity with the data through repeated reading and then generated initial codes across the entire dataset. These codes were grouped into candidate themes, which were subsequently reviewed and refined, and representative excerpts were selected to illustrate each theme.

2.6. Ethical Considerations and Generative AI Use

Participation was voluntary, and informed consent was obtained in advance. Participants were free to withdraw at any stage without penalty. Each respondent was assigned a code to protect their identity, and the data were stored securely and reported without identifying details.

A generative artificial intelligence assistant was used to support language editing and reference formatting during manuscript preparation. It was not used to generate data or analytic results. The authors reviewed all output and take full responsibility for the content of this article.

3. Results

3.1. Respondent Profile

Table 1 summarises the demographic profile of the 362 respondents. Women constituted the majority of the sample, and most lecturers held a master's degree, with a sizeable doctoral group. Teaching experience ranged widely, and undergraduate teaching predominated.

Table 1. Demographic profile of survey respondents ($N = 362$).

Characteristic	Category	<i>n</i>	%
Gender	Male	146	40.3
	Female	216	59.7
Age group	30 years or below	76	21.0
	31–40 years	109	30.1
	41–50 years	98	27.1
	51 years or above	79	21.8
Highest qualification	Bachelor's degree	32	8.8
	Master's degree	225	62.2
	Doctoral degree	105	29.0
Teaching experience	2–5 years	118	32.6
	6–10 years	52	14.4
	11–15 years	53	14.6
	16–20 years	39	10.8
	21–30 years	51	14.1
Student level taught	More than 30 years	49	13.5
	Undergraduate	299	82.6
	Postgraduate	63	17.4
Class size	Fewer than 20	4	1.1
	20–50	54	14.9
	51–80	117	32.3
	More than 80	187	51.7

Class sizes were generally large, since approximately 84% of lecturers taught classes of more than fifty students. This feature of the teaching context is directly relevant to the findings on enactment reported below.

3.2. Conceptions of Critical Thinking

Table 2 presents the conception items in descending order of mean. The overall profile indicates a cognitively weighted understanding of critical thinking, in which formal reasoning elements attracted the strongest endorsement. Logics received the highest rating ($M = 4.56$, $SD = 0.56$), followed closely by reasoning ($M = 4.42$, $SD = 0.53$).

Table 2. Descriptive statistics for lecturers' conceptions of critical thinking ($N = 362$).

Conception Items	M	SD
Logics	4.56	0.56
Reasoning	4.42	0.53
Intelligence	4.36	0.68
Being critical	4.25	0.44
Awareness of one's own learning process	4.21	0.42
Memorisation skills and techniques	4.16	0.59
Changing perspectives	4.14	0.49
Making appropriate arguments	4.13	0.37
Problem solving	4.10	0.36
Being creative	3.98	0.70
Openness and flexibility	3.57	0.50
Learning to learn together	3.16	0.58

Evaluative and metacognitive elements were also well endorsed, with being critical and awareness of one's own learning both scoring above 4.20. Dispositional and social elements, by contrast, were rated lower: openness and flexibility reached only 3.57 ($SD = 0.50$), and learning to learn together was the lowest-rated item ($M = 3.16$, $SD = 0.58$).

This pattern is consistent with an individual, skill-centred framing of critical thinking, in which collaborative and dispositional aspects occupy a peripheral position. Such a framing carries clear implications for the manner in which critical thinking is subsequently taught.

3.3. Attitudes Towards Critical Thinking

Table 3 reports the attitude items. General endorsement of critical thinking was strong, as lecturers agreed most strongly that it matters for personal development ($M = 4.38$, $SD = 0.73$) and that it can be developed in various ways ($M = 4.30$, $SD = 0.70$).

Table 3. Descriptive statistics for lecturers' attitudes towards critical thinking ($N = 362$).

Attitude Items	M	SD
Important for personal development and learning	4.38	0.73
Students can develop critical thinking in various ways	4.30	0.70
Some students have stronger critical thinking than others	4.27	0.74
Critical thinking is influenced by social and cultural contexts	4.25	0.72
Important for learning in all disciplines	4.21	0.88
Should be cultivated from an early stage	4.19	0.83
Crucial for improving mastery of knowledge	4.13	0.81
All students' critical thinking can be cultivated	3.97	0.92
More critical thinking activities should be added to textbooks	3.86	0.84
Should be promoted in ideological and political theory courses	3.22	0.86
Should be a core part of ideological and political theory courses	3.18	0.76

Endorsement weakened markedly, however, when items named the IPTC context. The proposition that critical thinking should be promoted in IPTCs scored 3.22 ($SD = 0.86$), and the proposition that it should be a core component of IPTCs scored 3.18 ($SD = 0.76$).

Both values sat close to the scale midpoint, and the divergence from the general items is substantively meaningful.

Lecturers thus distinguished between a universal educational aim and a course-specific commitment. They valued critical thinking in general terms while remaining more circumspect about foregrounding it within IPTCs.

3.4. Classroom and Assessment Practices

Table 4 presents the practice items. Reported enactment was limited, with most items falling below the scale midpoint of 3.0. The clear exception was a constraint item, since lecturers agreed strongly that content coverage limited the time available for critical thinking ($M = 4.10$, $SD = 0.66$).

Table 4. Descriptive statistics for lecturers' classroom and assessment practices ($N = 362$).

Practice Item	M	SD
Time for critical thinking is limited by content coverage	4.10	0.66
I encourage students to give unexpected answers	3.06	0.82
I encourage students to be open to new ideas	2.99	0.81
I provide opportunities for collaborative problem solving	2.98	0.87
I allow students enough time to develop critical thinking	2.96	0.78
I cultivate critical thinking by asking open-ended questions	2.90	1.24
I know different methods to promote critical thinking	2.78	0.67
My classes provide opportunities to develop critical thinking	2.73	0.70
I encourage critical thinking on IPTC topics	2.72	0.73
I have received sufficient training to promote critical thinking	2.65	0.75

Active pedagogies attracted only weak endorsement. Collaborative problem solving scored 2.98 ($SD = 0.87$), and open-ended questioning scored 2.90, with the widest dispersion in the table ($SD = 1.24$). Perceived training was the lowest-rated item ($M = 2.65$, $SD = 0.75$), and method knowledge was similarly low ($M = 2.78$, $SD = 0.67$).

This configuration points to a problem of capability and time rather than of conviction. Lecturers reported limited preparation and a restricted repertoire of routines, and the wide dispersion for questioning suggests considerable variability in practice.

3.5. Contextual Enablers and Constraints

Table 5 reports the contextual items, which were dominated by constraints. Large class size emerged as the strongest barrier ($M = 4.21$, $SD = 0.57$), followed by a grade-oriented student culture ($M = 4.14$, $SD = 0.70$).

Table 5. Descriptive statistics for contextual factors affecting teaching practice ($N = 362$).

Contextual Factors	M	SD
Class size is too large (more than 50 students)	4.21	0.57
Students care more about grades than learning	4.14	0.70
Difficult to combine content coverage with critical thinking	4.08	0.75
Lack of time to prepare and plan critical thinking strategies	4.06	0.65
I am not sure of my ability to teach critical thinking	3.96	0.83
Need to deliver a large amount of content	3.94	0.72
Teaching workload hinders critical thinking teaching	3.88	0.76
Insufficient preparation for teaching critical thinking	3.88	0.72
Critical thinking is not highly valued at my university	3.53	0.96
I avoid critical thinking for fear of negative student feedback	3.25	1.04
Research activities interfere with critical thinking teaching	3.20	0.91

Coverage pressure was likewise prominent, as the difficulty of combining content with critical thinking scored 4.08 (SD = 0.75) and limited preparation time scored 4.06 (SD = 0.65). Constraints relating to confidence and training were also evident, with self-rated ability to teach critical thinking remaining modest (M = 3.96, SD = 0.83).

Institutional valuing displayed greater variability (M = 3.53, SD = 0.96), as did fear of negative feedback (M = 3.25, SD = 1.04). The strongest and most consensual barriers were therefore structural rather than attitudinal.

Figure 2 contrasts the composite means across the four constructs, rendering the gap between belief and practice readily apparent.

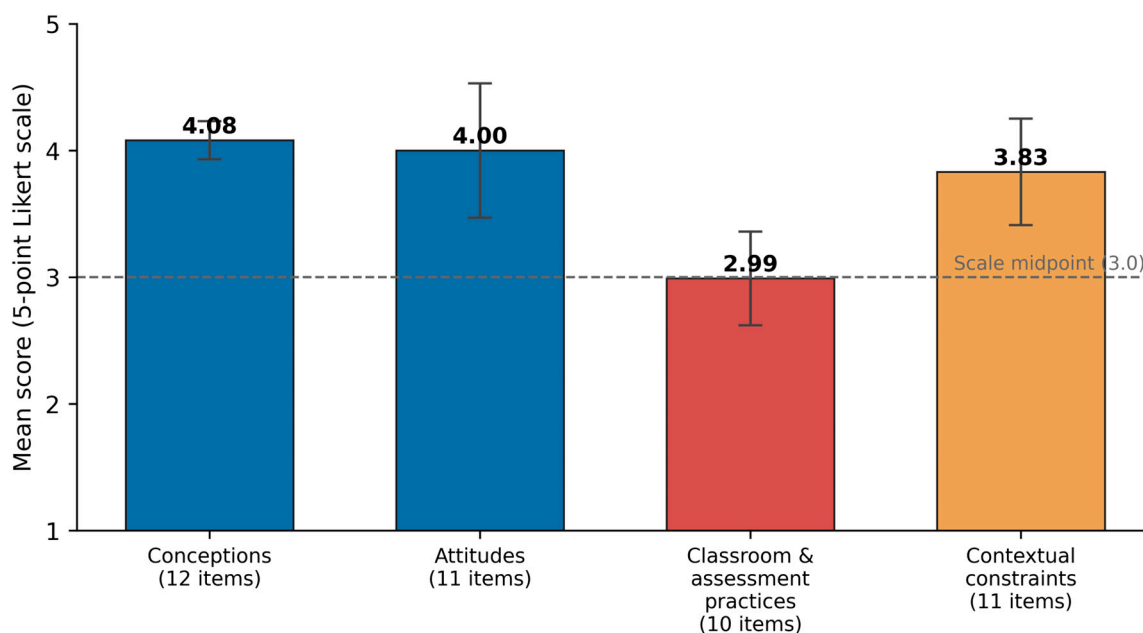


Figure 2. Composite mean scores for the four constructs ($N = 362$). Error bars show standard deviations, and the dashed line marks the scale midpoint of 3.0.

3.6. Bivariate Relationships Between Beliefs and Practices

Table 6 reports the correlations central to the belief–practice question. Conceptions showed no association with reported practices; the coefficient was negligible ($r = -0.006$, $p = 0.914$, $N = 362$), indicating that variation in understanding did not track variation in reported practice.

Table 6. Pearson correlations between lecturers’ beliefs and reported practices.

Relationship	<i>r</i>	<i>p</i>	<i>N</i>
Conceptions and reported practices	−0.006	0.914	362
Attitudes and reported practices	0.135	0.010 *	362

* Correlation is significant at the 0.05 level (two-tailed).

Attitudes, by contrast, showed a small but statistically significant positive association with practices ($r = 0.135$, $p = 0.010$, $N = 362$). The magnitude was modest, and the result is consistent with attitudes mattering only at the margins. At the bivariate level, this pattern offered preliminary support for H2 and none for H1.

3.7. Predicting Practices: Multiple and Moderated Regression

Correlations describe pairwise associations only, whereas regression permits a stronger test that incorporates controls. Table 7 reports Model 1, in which reported practices were

regressed on conceptions and attitudes, with the five demographic variables entered as controls.

Table 7. Multiple regression predicting reported critical thinking practices ($N = 362$).

Predictor	B	SE B	t	p	95% CI
Intercept	2.283	0.563	4.054	<0.001	1.176, 3.390
Conceptions	0.083	0.131	0.633	0.527	−0.175, 0.341
Attitudes	0.094	0.038	2.494	0.013	0.019, 0.169
Gender (female)	−0.034	0.043	−0.801	0.424	−0.119, 0.051
Age band	−0.002	0.041	−0.059	0.953	−0.083, 0.079
Qualification	0.022	0.035	0.634	0.527	−0.047, 0.091
Teaching experience	−0.001	0.023	−0.058	0.954	−0.046, 0.044
Class size	−0.009	0.026	−0.352	0.725	−0.060, 0.042

$R^2 = 0.025$, adjusted $R^2 = 0.005$, $F(7, 354) = 1.27$, $p = 0.264$. Standardised β for attitudes = 0.13.

Attitudes was the only significant predictor ($B = 0.094$, $p = 0.013$), with a standardised coefficient of 0.13, which is small. A one-point increase in attitude predicted an increase of approximately one-tenth of a point in reported practice. Conceptions did not predict practice ($B = 0.083$, $p = 0.527$), and none of the demographic controls attained significance. Model 1 therefore provided no support for H1, and support for H2 was weak in magnitude.

The overall model was weak, accounting for approximately one-half of one per cent of the variance after adjustment (adjusted $R^2 = 0.005$); the F test was not significant, $F(7, 354) = 1.27$, $p = 0.264$. Attitudes nonetheless remained significant under HC3 robust standard errors ($p = 0.005$). Figure 3 displays the coefficients with their 95% confidence intervals. The same intervals are reported alongside the coefficients in Table 7.

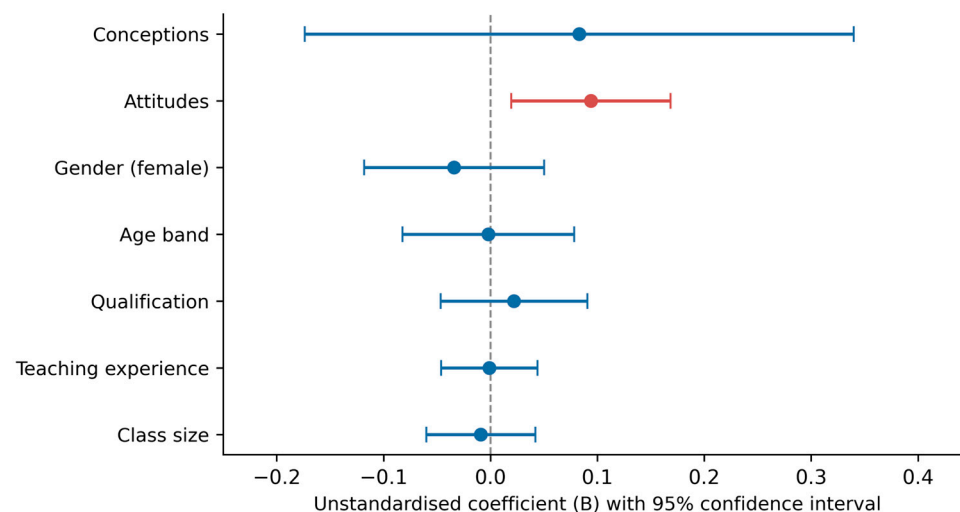


Figure 3. Unstandardised regression coefficients for Model 1 with 95% confidence intervals ($N = 362$). Only attitudes have an interval that excludes zero (marked in red line), and the dashed line marks a coefficient of zero.

Model 2 tested moderation by contextual constraints, and the results are reported in Table 8. Attitudes again predicted practice at a small magnitude ($B = 0.097$, $p = 0.015$), whereas constraints did not predict practice directly ($B = 0.035$, $p = 0.496$).

The interaction term was not significant ($B = 0.111$, $p = 0.237$), indicating that the attitude–practice relationship held broadly steady across levels of perceived constraint. The moderation hypothesis implied by the framework was therefore not supported, and the model again explained little variance (adjusted $R^2 = 0.009$). Formally, H3 was rejected, and the 95% confidence intervals for Model 2 are reported in Table 8.

Table 8. Moderated regression of practices on attitudes and contextual constraints ($N = 362$).

Predictor	B	SE B	t	p	95% CI
Intercept	3.008	0.128	23.529	<0.001	2.756, 3.260
Attitudes (centred)	0.097	0.040	2.433	0.015	0.018, 0.176
Constraints (centred)	0.035	0.051	0.681	0.496	−0.065, 0.135
Attitudes × Constraints	0.111	0.094	1.185	0.237	−0.074, 0.296
Gender (female)	−0.038	0.043	−0.877	0.381	−0.123, 0.047
Age band	−0.003	0.041	−0.061	0.951	−0.084, 0.078
Qualification	0.021	0.035	0.588	0.557	−0.048, 0.090
Teaching experience	−0.002	0.023	−0.065	0.948	−0.047, 0.043
Class size	−0.012	0.026	−0.444	0.657	−0.063, 0.039

$R^2 = 0.031$, adjusted $R^2 = 0.009$, $F(8, 353) = 1.41$, $p = 0.191$. Predictors are mean-centred before forming the product term.

Taken together, the regression results sharpen the central finding. Beliefs accounted for almost none of the variance in reported practice, and constraints did not gate the belief–practice relationship in the anticipated manner, so that the gap appears broad and systemic rather than individual.

Two patterns warrant emphasis across the quantitative findings. Endorsement was uniformly high while enactment was low, and neither background characteristics nor beliefs explained meaningful differences in practice. Considered alongside the large and widely shared constraints, this evidence points towards a system-level account, which the qualitative phase was used to examine more closely.

3.8. Qualitative Findings

The interviews elaborated the survey patterns and helped to account for the weak regression results. Five areas are reported below, and Table 9 summarises the principal themes together with representative excerpts.

Table 9. Summary of qualitative themes with representative excerpts ($n = 34$).

Interview Area	Key Themes	Representative Excerpt
Understanding of critical thinking	Reasoned, evidence-based judgement; intellectual autonomy	“Critical thinking is a way of thinking based on reason, logic and evidence.” (L25)
Conceptions and standards	Rationality, logical coherence and fair-mindedness	“The core criterion is undoubtedly rationality and objectivity.” (L26)
Attitudes towards importance	Core engine of learning; moving beyond rote memorisation	“It helps students jump out of the mode of rote memorisation.” (L3)
Willingness and strategies	Strong willingness; case analysis, problem chains and debate	“Incorporating critical thinking is a core goal in my teaching.” (L27)
Constraints	Student passivity; large classes; exam-oriented assessment	“It is difficult to achieve full interaction in large-class teaching.” (L31)
Proposed strategies	Curriculum integration; assessment reform; teacher development	“Reform the assessment method and incorporate thinking ability into evaluation.” (L8)

3.8.1. Understanding of Critical Thinking

Lecturers characterised critical thinking as reasoned, evidence-based judgement. L25 defined it as thinking grounded in reason, logic and evidence, while L1 emphasised reason and objectivity in the formation of judgements. Several participants linked it to intellectual autonomy and questioning, and L12 described independent thinking and the willingness to

challenge established claims. A reflective strand was also evident, as when L5 characterised it as thinking about thinking, and a smaller group connected critical thinking to ethical and civic responsibility.

3.8.2. Conceptions and Standards

Lecturers identified rationality and logical coherence as core standards. L26 named rationality and objectivity as the central criterion, and L33 emphasised valid argument and clear causal relations. Clarity and precision were also valued, with L8 listing clarity, relevance and logic among the key standards. Some participants adopted a dialectical view, L15 describing critique as dialectical rather than as one-sided rejection, whereas L7 cautioned that critique conducted without standards could decline into refutation for its own sake.

3.8.3. Attitudes Towards Importance

Lecturers regarded critical thinking as central to learning. L1 described it as the core engine of students' learning, and L3 argued that it moves students beyond rote memorisation. Several linked it to the discernment of information in a digital age, and L8 connected it to knowledge transfer and lifelong learning. A civic strand was also present, with L16 framing it as a safeguard against erroneous trends of thought, so that the perceived value of critical thinking was both high and widely shared.

3.8.4. Willingness and Reported Strategies

Most lecturers expressed a willingness to embed critical thinking in their teaching. L27 described it as a core teaching goal, and L11 regarded it as a means of moving beyond scripted delivery in IPTC. Reported strategies included case analysis and structured debate; L1 replaced content lists with a problem chain designed to prompt enquiry, and L28 combined case teaching with role-play and debate. Some participants linked critical thinking to authentic tasks, as when L21 described projects that simulate reality, while a few emphasised modelling their own reasoning aloud.

3.8.5. Constraints and Proposed Strategies

Lecturers identified a set of interrelated barriers to enactment. Student passivity and exam-oriented habits were widely noted, and L5 observed that students tend to prefer authoritative, standard answers. Large classes and limited time constrained interaction, and L31 remarked on the difficulty of achieving full interaction in large classes. Exam-oriented assessment was regarded as a structural obstacle, with L9 arguing that current tests reward memory over reasoning, and the limited availability of training and the presence of sensitive case material in IPTC were also mentioned.

Lecturers additionally proposed a range of constructive remedies. They called for curriculum integration and assessment reform, with L26 urging the embedding of critical thinking as a core competency goal and L8 advocating the inclusion of analysis and demonstration tasks in assessment. Several emphasised sustained teacher development in preference to one-off training, and others highlighted the value of an open classroom culture that tolerates disagreement, L24 calling for an inclusive atmosphere in which students feel able to question.

4. Discussion

The findings describe a clear belief–practice gap. Lecturers endorsed critical thinking strongly but their reported enactment was limited, and beliefs and practice were largely decoupled. The gap appears to be shaped more by the conditions of teaching than by the convictions of teachers.

4.1. A Cognitively Weighted Conception

Lecturers conceptualised critical thinking principally as an individual cognitive skill, prioritising logic and reasoning over dispositions and dialogue. This emphasis mirrors a long-standing tendency within higher education [7]. Reviews caution that a skills-only framing narrows what is taught [8], and dispositions are widely held to govern when analytic skills are actually deployed [5].

The conception is not erroneous, but it is incomplete. A narrow framing can favour teacher-controlled, short-answer reasoning at the expense of collaborative and reflective judgement. More generalisable outcomes are likely to depend on integrating cognitive skills with dispositional aims [8].

4.2. General Endorsement, Conditional Within IPTC

Attitudes diverged according to context. Lecturers endorsed critical thinking as a universal aim while expressing greater caution within IPTC, a domain that operates under explicit value-formation mandates [15]. The lower endorsement is plausibly a contextual adaptation rather than an attitudinal deficit.

This does not render critical thinking incompatible with IPTC. Lecturers may, however, perceive open critique as carrying ambiguous signals, particularly where the boundaries of legitimate critique are shaped by considerations of power and curricular control [16]. Integration is likely to prove more credible where critical thinking is framed as disciplined reasoning in the service of sanctioned course aims.

4.3. Limited Enactment Under Structural Constraints

Reported practice clustered below the scale midpoint, echoing evidence that endorsement frequently outruns enactment [7]. Since gains in reasoning depend on making thinking visible and on repeated practice [6], the prominence of large classes and coverage pressure is significant, as these conditions restrict opportunities for dialogue and feedback.

Scalable routines nonetheless exist. Problem-based learning can improve reasoning when it is carefully designed [24], and concept mapping yields moderate benefits for both skills and dispositions [25]. In larger cohorts, strategy-specific asynchronous discussion can support reasoning [26], and structured peer feedback offers a further scalable route [27]. Comparable pressures are documented elsewhere. Within China, narrative evidence indicates that testing and ranking practices actively produce grade-focused learner identities [28], a pattern that accords with the grade-oriented culture reported here. Similar constraints extend beyond China. For instance, medical educators in Pakistan reported that large classes and limited resources pushed them towards partly didactic approaches despite favourable views of student-centred methods [29].

4.4. Beliefs Do Not Predict Practice

The regression analysis reframes the belief–practice gap. Even with controls in place, attitudes predicted practice only weakly, with a standardised coefficient of 0.13, while conceptions did not predict practice at all and demographic background was unrelated to it.

The models accounted for almost none of the variance in practice, with an adjusted R^2 of 0.005 in Model 1. This pattern accords with implementation research on the limits of awareness, in which capability and incentives are found to matter more than conceptual endorsement [30]. Knowing what critical thinking is did not, in short, predict teaching it.

The magnitude of the attitude coefficient warrants a concrete reading. A one-point rise on the five-point attitude scale predicted a rise of roughly 0.09 points in reported practice, so even the difference between the least and the most favourable attitudes observed

would correspond to less than half a scale point in practice. Expressed in standardised terms, one standard deviation of attitude was associated with 0.13 standard deviations of reported practice. Read through the theory of planned behaviour, this is the pattern expected when perceived behavioural control is low, since favourable attitudes rarely issue in action where surrounding conditions block enactment [20]. The practical corollary is that interventions targeting attitudes alone would be expected to yield only marginal change in classroom behaviour.

These results are consistent with broader research on teacher cognition, in which stated beliefs and classroom practice are frequently loosely coupled [9]. The present data extend that pattern to IPTC and to critical thinking specifically, and they caution against reforms predicated on changing beliefs alone.

Placing the results beside prior studies clarifies where they converge and where they diverge. The weak attitude–practice association converges with survey evidence that higher education instructors prioritise critical thinking more than they teach it [7] and with Chinese EFL findings that teachers value critical thinking while lacking implementable routines [10,11]. It diverges from studies that report closer belief–practice alignment, which typically involve sustained professional learning in which beliefs and routines develop together. For instance, recent multi-case evidence shows maladaptive beliefs about critical thinking shifting only across repeated cycles of mentored practice [31]. One plausible explanation for the divergence is that belief measures predict practice mainly where teachers already hold usable routines, a condition that the low training and method-knowledge scores reported here suggest was absent.

The null result for conceptions also invites a measurement interpretation. Survey-based conceptions may capture normative language rather than usable pedagogical knowledge, since lecturers can endorse desirable attributes without possessing concrete teaching routines. Such endorsement need not index pedagogical content knowledge, which would explain why conceptions did not predict practice and which argues for measures that probe what lecturers actually do.

4.5. The Moderation Hypothesis Was Not Supported

The framework treated constraints as a gate through which beliefs must pass, and the interaction term tested this proposition directly. The interaction was not significant ($B = 0.111$, $p = 0.237$), and the attitude–practice relationship held steady across levels of constraint, so that the anticipated gating effect did not materialise.

Two interpretations follow. The binding constraints may be systemic and broadly shared, since large classes and assessment norms apply to almost all lecturers in this setting, and a constraint that is near-universal cannot readily moderate differences between individuals. Alternatively, the relevant levers may lie outside the measured variables, such as departmental routines and assessment design, which were not captured here.

The non-significant interaction should also be interpreted with caution, since tests of interaction effects frequently have limited statistical power. Either interpretation, however, directs attention away from individual beliefs as the principal target for intervention.

4.6. Alternative Explanations

The findings admit several alternative explanations that deserve acknowledgement. Positive attitudes may partly reflect social desirability, since critical thinking is an officially endorsed reform goal that lecturers may have been reluctant to disavow. Self-reported practices may likewise overestimate actual enactment, and common method variance can distort associations among self-reported constructs [32]. If either bias operated here, the true distance between attitudes and classroom practice would be wider than the reported

one, which strengthens the central conclusion. A further possibility concerns the course context itself. IPTC lecturers may hesitate to report or to adopt critical thinking practices fully because of the political sensitivity of the material, so part of the reported restraint may reflect prudential judgement. None of these possibilities can be excluded with the present design, and each is testable with observational and longitudinal data.

4.7. Practical Implications

Encouragement alone is unlikely to close the gap. Assessment represents the most leverage-rich point of intervention, since recall-heavy examinations signal that critical thinking is optional. Aligned tasks must instead reward the quality of argument and the use of evidence, supported by transparent rubrics and by marking loads that remain feasible.

Assessment redesign requires technical specificity rather than exhortation. Generic essay prompts are unlikely to shift practice, whereas common analytic rubrics can render reasoning visible and gradable [33]. Performance tasks can reward the quality of argument across disciplines, and such instruments also assist lecturers in marking consistently at scale.

Professional learning, similarly, should be practice-based rather than delivered as isolated workshops. Sustained, job-embedded support is more reliably associated with changes in classroom practice [34], and coaching can connect conceptions to concrete routines [30]. Recent scholarship in this journal likewise points to active, student-centred designs [17], and carefully framed technology can help to make reasoning visible [18].

Concrete exemplars are likely to be of greatest assistance to IPTC lecturers. A short case might require students to weigh competing evidence within sanctioned themes; a structured prompt might require both an argument and a counter-argument; and a concise rubric might reward clarity and the use of evidence [33]. Such moves keep critical thinking bounded yet genuine, and they accommodate the constraints of time and class size documented here.

Reform should, finally, be attuned to the IPTC context. Critical thinking might be operationalised initially as disciplined reasoning within authorised boundaries, before being extended towards comparative evaluation and structured deliberation [16]. The objective is to specify what constitutes legitimate critique rather than to dilute it, and short, repeatable lesson segments may suit content-heavy IPTCs better than full-scale debates.

The recommendations can be grouped by stakeholder. Universities should reduce the structural barriers documented here, for example by creating smaller discussion sections attached to large lectures and by recognising teaching innovation in workload and promotion decisions. Curriculum developers should embed critical thinking objectives and short analytic tasks directly into IPTC syllabi and accompanying textbooks, so individual lecturers do not carry the design burden alone. Lecturers can begin with brief, repeatable routines, and a structured prompt requiring an argument and a counter-argument within sanctioned themes offers a workable starting point [33]. Policymakers should align assessment regulation with the stated reform goals and fund sustained, practice-based professional learning in preference to one-off workshops [34], since recent evidence indicates that teachers' beliefs shift most readily during mentored cycles of classroom practice [31].

5. Conclusions

This study examined critical thinking in the teaching of Chinese IPTCs. Lecturers valued critical thinking and understood it largely in cognitive terms. However, their reported enactment remained limited and below the scale midpoint. Conceptions were unrelated to practice and attitudes were only weakly related; regression with controls confirmed this weak relationship, and contextual constraints did not moderate it.

The study makes two contributions to theory. It extends belief–practice research to a value-laden course setting and shows that the weak attitude–practice association survives

demographic controls, and it indicates that near-universal constraints may fail to moderate individual-level relationships precisely because they are widely shared. The near-zero explained variance further suggests that survey measures of conceptions capture normative endorsement more readily than usable pedagogical knowledge.

The belief–practice gap was therefore broad and systemic. Closing it will require coherent, multi-level design: assessment that rewards reasoning rather than recall, professional learning that is sustained and embedded in practice, and pedagogies suited to large classes and to the particular aims of IPTCs. Under aligned conditions, favourable beliefs may be converted into reliable practice.

For policy, the findings caution against reform strategies that rely on exhortation alone. Provincial and institutional authorities hold the levers identified here as binding, including class size and assessment regulation together with teaching workload, and adjusting these conditions is likely to matter more than further awareness raising. For practice, the immediate significance lies in assessment design, since rubric-based tasks that reward the quality of argument can be introduced within existing curricular mandates [33].

Several limitations qualify these conclusions. The sample was drawn from a single province, which constrains transferability, and the evidence relied on self-report in the absence of classroom observation. Common-method variance may inflate the modest attitude–practice association, and the cross-sectional design precludes firm causal inference. The purposive, snowball recruitment may, in addition, have introduced selection bias.

The low explained variance is itself a finding that merits further investigation, since it suggests that unmeasured structural factors drive practice. Future research should broaden sampling beyond a single province, incorporate classroom observation and student work to reduce self-report bias, and employ longitudinal and intervention designs to test aligned assessment and sustained coaching [34]. Co-design with IPTC lecturers would further enhance the feasibility and acceptability of such interventions.

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References

1. Abrami, P.C.; Bernard, R.M.; Borokhovski, E.; Waddington, D.I.; Wade, C.A.; Persson, T. Strategies for teaching students to think critically: A meta-analysis. *Rev. Educ. Res.* **2015**, *85*, 275–314. [CrossRef]
2. Sanches, T.; Paz, A.L. Student-centred pedagogies in post-Bologna higher education: Research trends from 2010 to 2020. *Trends High. Educ.* **2025**, *4*, 61. [CrossRef]

3. Facione, P.A. ERIC Document ED315423 *Critical Thinking: A Statement of Expert Consensus for Purposes of Educational Assessment and Instruction (The Delphi Report)*; ERIC Document ED315423; The California Academic Press: Millbrae, CA, USA, 1990.
4. Halpern, D.F. Teaching critical thinking for transfer across domains: Disposition, skills, structure training, and metacognitive monitoring. *Am. Psychol.* **1998**, *53*, 449–455. [[CrossRef](#)] [[PubMed](#)]
5. Dwyer, C.P.; Hogan, M.J.; Stewart, I. An integrated critical thinking framework for the 21st century. *Think. Ski. Creat.* **2014**, *12*, 43–52. [[CrossRef](#)]
6. Heijltjes, A.; van Gog, T.; Leppink, J.; Paas, F. Improving critical thinking: Effects of dispositions and instructions on economics students' reasoning skills. *Learn. Instr.* **2014**, *29*, 31–42. [[CrossRef](#)]
7. Bellaera, L.; Weinstein-Jones, Y.; Ilie, S.; Baker, S.T. Critical thinking in practice: The priorities and practices of instructors teaching in higher education. *Think. Ski. Creat.* **2021**, *41*, 100856. [[CrossRef](#)]
8. Andreucci-Annunziata, P.; Riedemann, A.; Cortés, S.; Mellado, A.; del Río, M.T.; Vega-Muñoz, A. Conceptualizations and instructional strategies on critical thinking in higher education: A systematic review of systematic reviews. *Front. Educ.* **2023**, *8*, 1141686. [[CrossRef](#)]
9. Basturkmen, H. Review of research into the correspondence between language teachers' stated beliefs and practices. *System* **2012**, *40*, 282–295. [[CrossRef](#)]
10. Zhang, H.; Yuan, R.; He, X. Investigating university EFL teachers' perceptions of critical thinking and its teaching: Voices from China. *Asia-Pac. Educ. Res.* **2020**, *29*, 483–493. [[CrossRef](#)]
11. Li, L. Critical thinking from the ground up: Teachers' conceptions and practice in EFL classrooms. *Teach. Teach.* **2023**, *29*, 571–593. [[CrossRef](#)]
12. Tan, C. A Confucian conception of critical thinking. *J. Philos. Educ.* **2017**, *51*, 331–343. [[CrossRef](#)]
13. Cui, R.; Teo, P. Thinking through talk: Using dialogue to develop students' critical thinking. *Teach. Teach. Educ.* **2023**, *125*, 104068. [[CrossRef](#)]
14. Jiang, S.; Sun, Q.; Lin, X. Exploring Chinese international students' critical thinking skills: A systematic literature review. *New Dir. Adult Contin. Educ.* **2024**, *2024*, 125–141. [[CrossRef](#)]
15. Liu, X.; Zhao, X. Ideological and political education in Chinese universities: Structures and practices. *Asia Pac. J. Educ.* **2023**, *43*, 586–598. [[CrossRef](#)]
16. An Le, D.T.B.; Hockey, J. Critical thinking in the higher education classroom: Knowledge, power, control and identities. *Br. J. Sociol. Educ.* **2022**, *43*, 140–158. [[CrossRef](#)]
17. Mutanga, M.B. Students' perspectives and experiences in project-based learning: A qualitative study. *Trends High. Educ.* **2024**, *3*, 903–911. [[CrossRef](#)]
18. Anwar, N. The use of generative artificial intelligence to develop student research, critical thinking, and problem-solving skills. *Trends High. Educ.* **2025**, *4*, 34. [[CrossRef](#)]
19. Papanephytous, C.; Nicolaou, S.A. Promoting critical thinking in biological sciences in the era of artificial intelligence: The role of higher education. *Trends High. Educ.* **2025**, *4*, 24. [[CrossRef](#)]
20. Ajzen, I. The theory of planned behavior. *Organ. Behav. Hum. Decis. Process.* **1991**, *50*, 179–211. [[CrossRef](#)]
21. Creswell, J.W.; Plano Clark, V.L. *Designing and Conducting Mixed Methods Research*, 3rd ed.; SAGE Publications: Thousand Oaks, CA, USA, 2018.
22. Braun, V.; Clarke, V. Using thematic analysis in psychology. *Qual. Res. Psychol.* **2006**, *3*, 77–101. [[CrossRef](#)]
23. Tavakol, M.; Dennick, R. Making sense of Cronbach's alpha. *Int. J. Med. Educ.* **2011**, *2*, 53–55. [[CrossRef](#)] [[PubMed](#)]
24. Liu, Y.; Pásztor, A. Effects of problem-based learning instructional intervention on critical thinking in higher education: A meta-analysis. *Think. Ski. Creat.* **2022**, *45*, 101069. [[CrossRef](#)]
25. Barta, A.; Fodor, L.A.; Tamas, B.; Szamoskozi, I. The development of students' critical thinking abilities and dispositions through the concept mapping learning method: A meta-analysis. *Educ. Res. Rev.* **2022**, *37*, 100481. [[CrossRef](#)]
26. Zhang, Z.; Zhang, E.; Liu, H.; Han, S. Examining the association between discussion strategies and learners' critical thinking in asynchronous online discussion. *Think. Ski. Creat.* **2024**, *53*, 101588. [[CrossRef](#)]
27. Zeng, X.; Ravindran, L. Design, implementation, and evaluation of peer feedback to develop students' critical thinking: A systematic review from 2010 to 2023. *Think. Ski. Creat.* **2025**, *55*, 101691. [[CrossRef](#)]
28. Yu, H.; Luo, H. High-achieving learner identity in the everyday politics of examination in China: A critical narrative inquiry. *Educ. Rev.* **2025**, *77*, 1545–1563. [[CrossRef](#)]
29. Sukkurwalla, A.; Zaidi, S.J.A.; Taqi, M.; Waqar, Z.; Qureshi, A. Exploring medical educators' perspectives on teaching effectiveness and student learning. *BMC Med. Educ.* **2024**, *24*, 1433. [[CrossRef](#)] [[PubMed](#)]
30. Kraft, M.A.; Blazar, D.; Hogan, D. The effect of teacher coaching on instruction and achievement: A meta-analysis of the causal evidence. *Rev. Educ. Res.* **2018**, *88*, 547–588. [[CrossRef](#)]
31. Leibovitch, Y.M.; Beencke, A.; Ellerton, P.J.; McBrien, C.; Robinson-Taylor, C.-L.; Brown, D.J. Teachers' (evolving) beliefs about critical thinking education during professional learning: A multi-case study. *Think. Ski. Creat.* **2025**, *56*, 101725. [[CrossRef](#)]

32. Podsakoff, P.M.; MacKenzie, S.B.; Lee, J.-Y.; Podsakoff, N.P. Common method biases in behavioral research: A critical review of the literature and recommended remedies. *J. Appl. Psychol.* **2003**, *88*, 879–903. [[CrossRef](#)] [[PubMed](#)]
33. Cargas, S.; Williams, S.; Rosenberg, M. An approach to teaching critical thinking across disciplines using performance tasks with a common rubric. *Think. Ski. Creat.* **2017**, *26*, 24–37. [[CrossRef](#)]
34. Sims, S.; Fletcher-Wood, H. Identifying the characteristics of effective teacher professional development: A critical review. *Sch. Eff. Sch. Improv.* **2021**, *32*, 47–63. [[CrossRef](#)]

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