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From Awareness to Action: Challenges in Integrating Critical Thinking into Teaching Among Northern Vietnamese School Teachers

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ABSTRACT

This study explores the readiness of high school teachers in Northern Vietnam to promote students' critical thinking (CT). A survey of 103 teachers from 15 mountainous provinces was conducted using a 20-item Likert-scale instrument, covering four dimensions: conceptual understanding, pedagogical practices, perceived barriers, and support needs. The instrument demonstrated good internal consistency (Cronbach's $\alpha = 0.853$). Findings reveal widespread consensus on the importance of CT, its cross-subject applicability, and the regular use of open-ended questioning, group discussion, and real-world scenarios. However, notable uncertainty persists regarding curriculum constraints, time allocation, and resource availability—forming a "grey zone" of latent obstacles. Despite strong motivation, a small proportion of teachers remain unsure about CT's conceptual foundations, indicating a need for targeted professional development. To bridge the gap between intention and sustained practice, the study proposes three actionable strategies: (1) modular training programs focused on instructional design; (2) a ready-to-use CT resource toolkit; and (3) institutional support through workload reduction and innovation incentives. These findings underscore that effective CT integration depends on aligning teacher capacity, practical resources, and organizational support.

Keywords: Critical thinking, Teachers, Perceptions, Barriers, Professional development, High school, Viet Nam.

INTRODUCTION

In the current educational landscape, the cultivation of students' critical thinking (CT) has become a central objective, demanding that teachers not only possess a clear understanding of its essence but also have the requisite competencies and resources to design and implement effective instruction. Empirical studies have demonstrated a strong association between teachers' beliefs and perspectives and the success of CT development in learners (1–3). A deep exploration of teachers' viewpoints on CT thus serves to uncover the challenges they face, the support they require, and the essential content to be included in professional development programs.

Teachers' Perspectives and Conceptions of CT

Numerous investigations have examined how teachers define and conceptualize CT. Liao et al. synthesized the various ways in which teachers "define, implement, measure, and assess" CT in a methodological review (4). Leibovitch et al. revealed that teachers' beliefs about CT undergo a "continuous

evolution" through participatory action research (5). Saribas analyzed early childhood educators' argumentative strategies when tackling socioscientific issues, reflecting initial levels of critical reasoning (6). Similarly, Khan et al. explored shifts in pre-service teachers' perceptions of CT before and after completing a functional English course (7).

Professional Development and Training for Teachers

Structured professional development is pivotal for equipping teachers to foster CT. Wason investigated the inherent difficulties of "teaching CT" and advocated for the integration of threshold concepts theory into teacher education curricula (2). Lithoxoidou and Papadopoulou employed a critical-incidents analysis framework to train in-service teachers in CT facilitation (8). In higher education settings, Moodley and Chetty proposed a theoretical framework for CT pedagogy that emphasizes scaffolded guidance (9). Marangio et al. identified key strategies for nurturing CT competencies in science pre-service teachers (10), while digital storytelling modules have been piloted to enhance teachers' reflective and analytic capacities (11).

Challenges and Barriers Faced by Teachers

Teachers encounter multiple systemic and practical obstacles in CT instruction. Barton et al. highlighted institutional constraints that impede the development of critical literacy in early childhood contexts (12). Pre-service teachers and novice educators often lack core practical experiences, resulting in inconsistencies between their beliefs and classroom practices (13). University English instructors in China and Moroccan EFL teachers have reported insufficient programmatic support, limited instructional time, and unclear professional directives (14,15). Even primary school teachers in Norway face difficulties guiding students to critically evaluate information sources (16).

Support Requirements and Recommendations

To address these challenges, research has recommended the establishment of coherent policies and professional development frameworks that provide standardized curricula, reference materials, and collaborative forums for experience-sharing (17,18). Classroom observation systems based on CT rubrics have been developed to facilitate formative feedback for teachers (3,19). Additionally, university faculty are encouraged to participate in intensive, practice-oriented workshops that focus on CT pedagogy, feedback mechanisms, and evaluation standards (20).

Yet, such systemic approaches are rarely contextualized to reflect the lived realities of teachers in under-resourced high schools. Without localized insights into teachers' perceived challenges and needs, even well-designed interventions risk misalignment.

This study seeks to address that gap by focusing on high school teachers in 15 mountainous provinces of Northern Vietnam. It aims to assess their conceptual understanding of CT, explore implementation practices, identify perceived barriers, and clarify support needs. By analyzing their responses, the study contributes grounded evidence that can inform future training, resource development, and school-level support strategies.

MATERIALS & METHODS

This study addresses two primary research questions:

1. How do upper secondary school teachers conceptualize and evaluate students' CT skills?
2. What challenges and support requirements must be met for teachers to effectively implement CT instruction?

Sample size was determined using the formula $n = 5 \times m$ (21), where $m = 20$ independent variables (corresponding to the 20 survey items), yielding a minimum required sample of 100. A total of **103** valid

responses were collected, exceeding this threshold.

Sample characteristics (N = 103)

- **Gender**: Female 67 (65 %), Male 36 (35 %)
- **Location**: Distributed across 15 mountainous provinces in Northern Vietnam (Thai Nguyen, Lang Son, Cao Bang, etc.), ensuring representation of remote areas
- **Subject taught**: Physics 33 (32 %), Mathematics 12 (12 %), Literature 11 (11 %), Biology 9 (9 %), Chemistry 8 (8 %), with the remainder teaching various other subjects
- **Teaching experience**: > 10 years 83 (80.6 %), 5–10 years 20 (19.4 %)

Comments on sample characteristics

- *Gender*: The predominance of female teachers mirrors national trends in Vietnam and enriches the diversity of perspectives, though potential differences in teaching style and technology adoption should be considered.
- *Location*: The multi-province distribution enhances geographic representativeness; however, variability in infrastructural resources may affect teachers' experiences and support needs.
- *Subject taught*: While physics teachers form the largest subgroup, inclusion of various disciplines increases the generalizability of findings to CT instruction across the curriculum.
- *Teaching experience*: The majority of respondents are veteran educators (> 10 years), providing insights grounded in extensive practice, while representation of less experienced teachers permits comparative analysis across career stages.

Survey period: 20 June 2025 – 28 June 2025, administered online via Google Forms.

Methods

1. **Document analysis**: A systematic review of theories, models, and practices in CT pedagogy drawn from academic articles, educational reports, and specialist curricula.
2. **Expert content analysis**: A structured survey of 103 teachers using a 20-item Likert scale (1–5), organized into four domains: conceptual understanding, instructional practice, challenges, and support requirements.
3. **Statistical analysis**: Reliability testing via Cronbach's alpha, calculation of means and standard deviations for each item, and correlation analyses to reveal patterns in teacher perceptions, encountered barriers, and desired supports.

By integrating these approaches, the study not only maps prevailing teacher perspectives but also pinpoints critical barriers and formulates targeted recommendations for training and support, thereby enhancing the effectiveness of CT instruction in secondary education.

RESULT & DISCUSSION

1. Overall Assessment

Reliability Analysis Results (N = 103). The 20-item scale yielded a Cronbach's α of 0.853 (> 0.80), indicating good internal consistency.

Table 1. Survey Results Table

Item	Mean	Std. Dev.	Corrected Item-Total r
1	4.825	0.382	0.509
2	4.777	0.419	0.559
3	4.505	0.592	0.363
4	4.680	0.489	0.363
5	4.767	0.425	0.518
6	4.680	0.564	0.540
7	4.748	0.437	0.672
8	4.699	0.502	0.603
9	4.728	0.447	0.586
10	4.660	0.476	0.689
11	3.495	0.989	0.199
12	3.845	0.738	0.578
13	3.971	0.550	0.546
14	3.893	0.685	0.537
15	3.971	0.720	0.580
16	4.068	0.598	0.370
17	4.107	0.463	0.268
18	4.039	0.625	0.347
19	4.068	0.529	0.163
20	4.330	0.663	0.331

- **High consensus**
  Item means range from **3.50 to 4.83** on a 5-point Likert scale, showing that teachers generally **agree to strongly agree** with statements about the importance and feasibility of fostering critical-thinking skills.
- **Acceptable dispersion**
  Standard deviations between **0.38 and 0.99** indicate relatively uniform opinions across respondents.
- **Item-total correlations**

— **17 of 20 items exceed 0.30**, satisfying the criterion for adequate linkage to the overall construct.

— Items 11, 17, and 19 fall below 0.30; dropping them would raise Cronbach's α to **0.874**, suggesting they should be revised or omitted in future surveys.

The scale is reliable for current research on teachers' perceptions and needs concerning critical-thinking development. Refining the three low-correlation items will further enhance internal consistency and measurement accuracy in subsequent studies.

2. Teachers' Perceptions of Critical Thinking

Survey results indicate that high-school teachers' perceptions of critical thinking (CT) are highly positive and consistent. First, all 103 participating teachers affirmed that CT is an essential competence for students: 82.5 % selected "Strongly agree" and 17.5 % chose "Agree", with no neutral or opposing opinions recorded. This strong conviction is reinforced by the fact that 100 % of teachers agree that CT helps students learn more actively, creatively, and responsibly, with 77.7 % strongly agreeing. Thus, in terms of attitude, teachers show unequivocal support for the value and benefits of CT—an important prerequisite for implementing instructional-innovation programmes.

Despite this positive attitude, a small "gap" appears in theoretical competence: 95.1 % of teachers believe they "fully understand" the concept and characteristics of CT, yet 4.9 % remain "uncertain". Although modest, this discrepancy suggests a need for targeted professional development to ensure every teacher possesses solid knowledge before moving to practice. The findings also reveal high perceived feasibility of integrating CT: 99 % believe the skill can be embedded in most subjects, while only 1 % are neutral. This reflects a relatively "open" curriculum that allows interdisciplinary scenarios to foster CT in mathematics, literature, natural and social sciences alike.

Regarding practice frequency, 100 % of teachers state that CT should be cultivated "regularly and continuously", with 76.7 % strongly agreeing. This unanimity underscores the need to schedule and distribute CT activities throughout weekly lesson plans rather than concentrating them in a few isolated sessions. Looking across the first five questions (Q1–Q5), we observe a "circle of consensus" comprising: positive attitude (teachers recognise the importance and benefits of CT), perceived feasibility (ability to integrate across subjects), and commitment to action (continuous practice). Attention should focus on the small proportion of teachers still unsure about their conceptual understanding and the 1 % who have not yet clearly envisioned how to embed CT in individual subjects.

From these findings, we can conclude that teachers' perceptions of CT are ready to shift from "intention" to "action". Immediate priorities include: (1) organising short refresher courses to consolidate concepts, distinguish levels, and outline CT processes; (2) compiling interdisciplinary CT-integration guides with illustrative examples; and (3) establishing a periodic CT activity schedule within each teaching week. Meeting these three requirements simultaneously will close the remaining knowledge gap and fully leverage teachers' strong support to implement critical-thinking development programmes effectively for high-school students.

3. Teaching Practices and the Development of Critical Thinking for Students

Survey results in Section II indicate that teaching–learning activities aimed at cultivating critical thinking have been implemented by teachers with considerable consistency and frequency. During the *initiation* stage, 97 % of teachers reported that they *regularly* pose open-ended questions to stimulate students' reasoning (71.8 % "Strongly agree," 25.2 % "Agree"). Immediately afterward, 100 % of teachers stated that they always encourage students to express personal viewpoints, with 74.8 % selecting "Strongly agree". This is a positive sign, because freedom of expression forms the bedrock of all critical argumentation.

In the *interaction* phase, 98 % of teachers frequently organize group activities in which students debate and critique one another (71.8 % "Strongly agree," 26.2 % "Agree"). At the same time, 100 % incorporate real-world situations to hone learners' analytical and evaluative abilities (72.8 % "Strongly agree," 27.2 % "Agree"). In the final step of the "CT behavior chain" — *assessment of outcomes* — all teachers confidently affirmed that they have a method for gauging students' progress (66 % "Strongly agree," 34 % "Agree"). Thus, the four links—questioning → encouraging viewpoints → group debate/real-world scenarios → assessment—exhibit very high implementation rates, forming a coherent process.

Although this "implementation loop" is nearly closed, a few minor bottlenecks remain. About 2.9 % of teachers admitted that they rarely or never employ open-ended questions, suggesting difficulties in question design or limited class time. Likewise, 1.9 % remain uncertain about organizing group debates. Furthermore, when asked about professional-development needs, 89.3 % of teachers expressed a desire for deeper training in CT-development methods, while only 1.9 % disagreed. These findings reveal that, despite widespread action, teachers still need support tools: a cognitive-level question bank, ready-made group-activity scripts, detailed assessment rubrics, and an up-to-date library of case studies.

Overall, current CT instruction in high schools has progressed from *intention* to *action* with substantial reach. Immediate priorities include:

1. **Creating a "drag-and-drop" resource kit** containing open questions, group activities, and real-world scenarios tailored to each subject area.
2. **Conducting specialized workshops** to refine questioning strategies and group-facilitation skills.
3. **Standardizing CT assessment rubrics** so that teachers can simultaneously teach and monitor students' progress.

By synchronizing these three solutions, each link in the instructional chain will be strengthened, enabling CT activities to run more smoothly and effectively in real classrooms.

4. Challenges in Developing Critical Thinking for Students

Analysis of the five barrier-related questions (Q11–Q15) reveals a common "grey zone": most teachers do not firmly identify any single blocking factor, yet neither do they completely deny the existence of difficulties. Notably, the *Unsure* option dominates—from 47.6 % (Q11) to 78.6 % (Q13)—showing that perceptions of the obstacles remain hazy and require further empirical evidence.

The curriculum framework is perceived as the least likely obstacle: 39.8 % of teachers reject the statement that "the curriculum offers too few opportunities for CT," while 47.6 % remain undecided. This suggests that, although the current curriculum is not an outright "burden," it still lacks clear CT-supportive highlights, calling for a review and tagging of CT elements within core content.

Content load and **time allocation** display similar uncertainty: 69.9 % of teachers are "unsure" about knowledge-load pressure and 68.9 % about time constraints (only about 18 % and 13.6 %, respectively, see no problem). These twin distributions imply that trimming content or designing short "5–10-minute

mini-CT activities" could be a viable solution.

Student habits emerge as the "vaguest" barrier: 78.6 % of teachers are unsure whether students are accustomed to debate; only 10.7 % assert that this is no longer an obstacle. This signals the need for gentle scaffolding activities that create a "safe zone" for students to practise voicing their opinions.

The availability of **instructional resources** is also unclear: 75.7 % remain "unsure" about the shortage of specialised materials, while 13.6 % believe existing resources are sufficient. These findings point to building an open-access, subject-specific resource bank and sharing best practices from teachers who "see no shortage" to disseminate their experience.

Thus, instead of a single concrete "wall," the challenges to CT development form a *web of soft barriers*—curriculum, content, time, student habits, and resources—each in an indeterminate state. To narrow this "grey zone," the study recommends three priority directions:

1. **In-depth qualitative inquiry** – conduct subject- and seniority-specific interviews to uncover the roots of teachers' "uncertainty," avoiding blanket interventions.
2. **Small-scale pilots** – trim content by 5–10 %, insert mini-CT activities, and supply sample materials; monitor feedback to identify the real obstacles.
3. **Leverage the "no-barrier" group** – invite these teachers to share time-planning processes, question-design strategies, or resource pools, creating a community of practice to help hesitant colleagues.

Implementing these measures in parallel will gradually clarify the "grey zone" of challenges, paving the way for more focused and effective interventions in developing critical thinking among high-school students.

5. Teachers' Needs and Recommendations for Developing Critical Thinking

Survey findings portray a faculty that is eager to advance students' critical-thinking skills but recognises that additional support is essential. Nearly nine out of ten teachers (89.3 %) say they need further professional development in CT pedagogy, while only 1.9 % disagree and 8.7 % remain neutral—evidence of an urgent demand for deeper instructional expertise. An even larger share (94.2 %) requests concrete guidance materials—sample lesson plans, tiered question banks and real-world scenarios—so they can move directly from theory to classroom practice.

Assessment practices are another focal point. Although 86.4 % favour redesigning tests and projects to foster CT, 11.7 % are unsure how to implement new formats or scoring criteria. At the institutional level, 89.3 % of teachers call for tangible backing—lighter teaching loads, seed funding and formal recognition—to feel confident about methodological innovation; none oppose, and 10.7 % are neutral. Finally, 89.3 % declare themselves ready to change immediately, yet a residual 10.7 % hesitate, signalling the need for visible success stories to strengthen their resolve.

Taken together, these results reveal a causal sequence. Enhanced individual capacity (professional development) and robust instructional resources (detailed guidance) form the starting conditions. Upgraded evaluation tools (revised assessments) and clear institutional incentives (school-level support) provide the launch pad. When both foundations are in place, teachers' declared readiness to change can translate into sustained action. In other words, the convergence of need, resource availability and organisational encouragement has opened a rare window of opportunity for whole-school CT development.

Immediate priorities

1. **Modular professional-development programme** – Offer a 20–30-hour blended course (online plus face-to-face, with certification) concentrating on three pillars: crafting CT-oriented questions,

facilitating multi-perspective discussions and constructing analytic rubrics.

2. **"CT Toolkit" for teachers** – Provide an interactive package that includes (a) a question bank mapped to four cognitive levels, (b) thirty interdisciplinary group-work or field-investigation scenarios and (c) ten exemplar tests or projects with detailed scoring rubrics, distributed as interactive PDFs and via the school LMS.
3. **"3 + 1" school-support scheme** – Reduce pioneers' teaching loads by 10 %, allocate seed funds for CT materials and experiments, convene a review board to vet new assessments and, as the +1, count CT innovation toward annual performance awards.
4. **Small-scale pilots** – Run six-week pilots in each grade so the hesitant minority can experience concrete gains, gather pre- and post-data and share outcomes within the Professional Learning Community (PLC).

Synchronising these four actions will shift the faculty from *willing* to *doing*, narrow the remaining hesitation and lay a durable foundation for systematic critical-thinking development across the school.

CONCLUSION

This study makes three key contributions:

1. **Context-specific evidence.** By surveying 103 high-school teachers across 15 mountainous provinces of Northern Vietnam, the study provides the first region-wide snapshot of how ready, willing and able under-resourced teachers are to foster critical thinking (CT).
2. **A reframed view of barriers.** Instead of treating curriculum load, time and materials as fixed "walls," the findings show that teachers experience these issues mainly as *areas of uncertainty*. Recognising this nuance points policymakers toward low-cost pilots and qualitative follow-ups rather than blanket reforms.
3. **Actionable support model.** The paper specifies a three-part package—modular capacity-building, a drag-and-drop CT toolkit, and a *3 + 1* incentive scheme—that directly maps onto the support teachers themselves prioritise.

Policy implications. Education authorities can embed micro-credential courses on CT in routine in-service training, host the ready-to-use toolkit on existing digital portals, and link school accreditation or performance reviews to demonstrable CT innovation. Because the model is modular, it can be scaled gradually without overloading budgets or teachers.

Future research. Larger samples—including urban and coastal regions—should validate the present patterns. Classroom observations and student pre/post testing are needed to connect teacher self-reports with learner outcomes, while year-long pilots can gauge the real-world impact of the proposed toolkit and incentive scheme.

Together, these steps will move Vietnamese secondary schools from isolated enthusiasm to system-wide, evidence-based cultivation of students' critical thinking skills.

Declaration by Authors

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